

WATER RESOURCES DEVELOPMENT PROJECT

# **SAXONVILLE LOCAL PROTECTION**

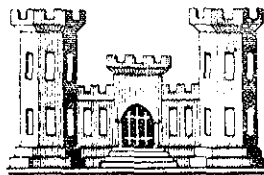
**SUDBURY RIVER  
MERRIMACK RIVER BASIN**

FRAMINGHAM, MASSACHUSETTS

## **DESIGN MEMORANDUM NO. 2**

**PHASE I**

**PLAN FORMULATION**



**DEPARTMENT OF THE ARMY  
NEW ENGLAND DIVISION, CORPS OF ENGINEERS  
WALTHAM, MASS.**

**APRIL 1973**



DEPARTMENT OF THE ARMY  
NEW ENGLAND DIVISION, CORPS OF ENGINEERS  
424 TRAPELO ROAD  
WALTHAM, MASSACHUSETTS 02154

REPLY TO  
ATTENTION OF:

NEDED-R

30 April 1973

SUBJECT: Saxonville Local Protection, Sudbury River, Merrimack  
River Basin, Framingham, Massachusetts, Design  
Memorandum No. 2, Phase I - Plan Formulation

HQDA (DAEN-CWP-E)  
WASH DC 20314

1. In accordance with ER 1110-2-1150, there is submitted for review and approval Design Memorandum No. 2, Phase I - Plan Formulation, for the Saxonville Local Protection, Sudbury River, Merrimack River Basin, Framingham, Massachusetts.
2. This memorandum reflects modifications and changes developed during the reassessment of the authorized Saxonville Local Protection Project. A description of departures and the reason for changes are outlined in the text of the report.
3. Advance copies of the Phase I - Plan Formulation report including the Environmental Statement dated 12 July 1971 have been reviewed by the U. S. Environmental Protection Agency. Their letter of comment dated 3 April 1973 is included in Appendix A as Exhibit 1. Section J, Paragraph 24, of this memorandum presents information and data relative to comments expressed by the U. S. Environmental Protection Agency.
4. Recently, the Roxbury Carpet Company closed its plant and operations in Saxonville and sold the entire complex of buildings and industrial property. Since a new analysis of losses under existing changing conditions cannot be made at this time, losses and benefits utilized in the report are based on the latest evaluation attributable to the Roxbury Carpet Company. A reanalysis of losses will be made during the preparation of the Phase II - Project Design, General Design Memorandum when a better definition of development details may be available.

NEDED-R

30 April 1973

SUBJECT: Saxonville Local Protection, Sudbury River, Merrimack  
River Basin, Framingham, Massachusetts, Design  
Memorandum No. 2, Phase I - Plan Formulation

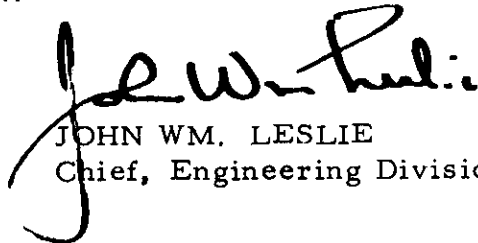
5. A copy of the Final Environmental Impact Statement dated 12 July 1971 filed with the President's Council on Environmental Quality on 15 August 1971, is included as an attachment to the report. Section K of this design memorandum presents environmental data available during preparation of this report.

6. Section Q of this memorandum presents the Statement of Findings prepared in accordance with EC 1105-2-501 dated 17 April 1972.

7. It is recommended that the project plan providing local flood protection for the village of Saxonville, in the town of Framingham be approved as the basis for preparation of the Phase II - General Design Memorandum.

FOR THE DIVISION ENGINEER:

Incl  
as (20 cys)

  
JOHN WM. LESLIE  
Chief, Engineering Division

WATER RESOURCES DEVELOPMENT PROJECT

SAXONVILLE LOCAL PROTECTION

SUDBURY RIVER, MERRIMACK RIVER BASIN

FRAMINGHAM, MASSACHUSETTS

DESIGN MEMORANDA INDEX

<u>No.</u>	<u>Title</u>	<u>Anticipated Submission Date</u>	<u>Date Submitted</u>	<u>Date Approved</u>
1	Hydrologic Analysis		12 Dec 72	23 Feb 73
2	General Design - Phase I		30 Apr 73	
2	General Design - Phase II	Jan 74		
3	Concrete Materials	Mar 74		
4	Embankments and Foundations	Mar 74		
5	Design of Structures	May 74		

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PHASE I  
PLAN FORMULATION

DEPARTMENT OF THE ARMY  
NEW ENGLAND DIVISION, CORPS OF ENGINEERS  
WALTHAM, MASSACHUSETTS

APRIL 1973



SUDBURY

RIVER

SAXONVILLE  
LOCAL PROTECTION  
PROJECT SITE

WATER RESOURCES DEVELOPMENT PROJECT

SAXONVILLE LOCAL PROTECTION  
SUDBURY RIVER, MERRIMACK RIVER BASIN  
FRAMINGHAM, MASSACHUSETTS

DESIGN MEMORANDUM NO. 2  
PHASE I - PLAN FORMULATION

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2-2	Authorized Plan
2-3	Modified Plan and Sections
2-4	Profile and Sections
2-5	Sections and Details

APPENDICES

- A Letters of Comment and Concurrence
- B Project Cost and Estimates

ATTACHMENT

Environmental Statement

# WATER RESOURCES DEVELOPMENT PROJECT

## SAXONVILLE LOCAL PROTECTION SUDBURY RIVER MERRIMACK RIVER BASIN FRAMINGHAM, MASSACHUSETTS

### A. PERTINENT DATA

#### PURPOSE

Flood Control

#### LOCATION

State	Massachusetts
County	Middlesex
Town	Framingham
Village	Saxonville, about 20 miles west of Boston
River	Sudbury, about 15 miles upstream of its mouth at the Concord River
River Basin	Merrimack

#### RECORD FLOODS

<u>Date</u>	<u>Peak Discharge*</u> (cfs)	<u>Flood Elevation*</u> (msl)
March 1936	2,050	125.5
July 1938	1,800	125.1
September 1954	2,850	127.6
August 1955	4,400	129.6
March 1968	2,100	127.0

\* At Concord Street Bridge

#### STANDARD PROJECT FLOOD

	<u>Drainage Area</u> (sq. mi.)	<u>Design Discharge</u> (cfs)
Sudbury River at Concord Street Bridge	86	10,000
Sudbury River at confluence w/Cochituate Brook	106	11,900

## AREAS ON LEFT BANK OF SUDBURY RIVER

Inundated by 1955 flood of record, acres	22
Subject to Standard Project Flood inundation, acres	29
Protection against 1955 flood, acres	16
Protection against Standard Project Flood, acres	23
Type of area protected	Industrial, commercial, public and residential

## FLOOD WALLS

At Saxonville Pond	Gravity Type, Concrete
Top elevation	154.2 msl
Length	170 feet
Maximum height	28 feet
Stations 0 + 00 to 2 + 00	L-Type, reinforced concrete
Top elevation	137.0 msl
Maximum height	26 feet
Maximum base width	27 feet
Stations 2 + 00 to 6 + 00	T-Type, reinforced concrete
Top elevation	137.0 msl
Maximum height	28 feet
Maximum base width	30 feet
Stations 6 + 00 to 6 + 28	I-Type, reinforced concrete
Top elevation	137.0 msl
Maximum height	27.5 feet
Stations 18 + 80 to 19 + 20	I-Type, reinforced concrete
Top elevation	136.5 msl
Maximum height	21.5 feet
Stations 19 + 20 to 21 + 80	T-Type, reinforced concrete
Top elevation	136.5 msl
Maximum height	23 feet
Maximum base width	24 feet
At Danforth Street	Gravity-type concrete
Top elevation	135.0 msl
Length	110 feet
Maximum height	8 feet

## DIKE

Type	Earthfill with rock slope protection
Top elevation	Varies 137.0 to 134.5 msl
Top width	12 feet
Maximum height	23 feet
Slopes	Riverside 1 on 2.5; Landside 1 on 2
Total length	2,650 feet

## PUMPING STATION

Substructure	Reinforced concrete
Size	20' x 15'
Pumps	2 Axial Flow Pumps
Pump capacity, each	10,500 GPM, 17' static head
Engines	Diesel
Gravity discharge line	48" diam. R. C. pipe

## CHANNEL REALIGNMENT

Length	1,200 feet
Bottom width	60 feet
Side slopes	1 vertical to 2.5 horizontal

## REAL ESTATE ACQUISITION

Permanent easement and fee	11-1/2 acres
Temporary easement	7-1/2 acres
Structures	1 warehouse

/

### PRINCIPAL QUANTITIES

Excavation	85,000 c. y.
Embankment and Fill	131,000 c. y.
Stone Protection	11,000 c. y.
Topsoil and Seeding	9,000 s. y.
Concrete	5,000 c. y.
R. C. Pipe (assorted sizes 12" to 48")	3,200 feet
Manholes	9
Drain Inlets	9
Pumping Station	1 job
Vehicular Steel Gates	1 job
Stoplog Structure	1 job

### ESTIMATED PROJECT COSTS (January 1973 Price Level)

Lands and Damages	\$ 375,000
Utility Relocations	15,000
Levees and Floodwalls	2,360,000
Pumping Station	195,000
Engineering and Design	405,000
Supervision & Administration	250,000
TOTAL	\$ 3,600,000

### COST APPORTIONMENT

<u>Project Feature</u>	<u>Federal</u>	<u>Non-Federal</u>	<u>Total</u>
Lands and Damages	---	\$375,000	\$ 375,000
Utility Relocations	---	15,000	15,000
Structures	\$ 3,210,000	---	3,210,000
TOTAL PROJECT FIRST COST	\$ 3,210,000	\$390,000	\$3,600,000

### ECONOMIC ANALYSIS

Annual Benefits	\$ 224,000
Annual Costs	\$ 130,000
Benefit-Cost Ratio	1.7 to 1

### CONSTRUCTION PERIOD

2 years

## B. INTRODUCTION

1. PURPOSE. - The purpose of this memorandum is to furnish and present an objective reassessment of the authorized Saxonville Local Protection Project and to either reaffirm the project as authorized, or to reformulate the project plan or parts thereof as required to meet changed conditions. This document further refines and builds on the basic planning decisions accomplished during the authorization process and serves as a basis for additional planning and construction of the authorized project.
2. SCOPE. - This memorandum covers the entire project including general data on the components, functions, costs and benefits of the local protection works, as well as deviations from the authorized plan dictated by changed conditions and criteria since project authorization. The data contained herein will be supplemented and expanded by the Phase II-Project Design, General Design Memorandum and by subsequent feature design memoranda as required.

## C. PROJECT AUTHORIZATION

3. AUTHORIZATION. - The Saxonville Local Protection Project was authorized by the Flood Control Act of 1966, Public Law 89-789, dated November 7, 1966, which reads in part as follows:

"The project for flood protection on the Sudbury River at Saxonville, Massachusetts, is hereby authorized substantially in accordance with the recommendations of the Chief of Engineers in Senate Document Numbered 61, Eighty-ninth Congress, at an estimated cost of \$1,300,000."

4. ASSURANCES. - The authorized Saxonville Local Protection Project in Framingham, Massachusetts, comprises construction of earth dikes, concrete flood walls, pumping station and drainage facilities, a vehicular flood gate, a railroad stoplog structure and channel improvement. Construction of the authorized project was recommended provided that, prior to construction, local interests furnish assurances satisfactory to the Secretary of the Army that they will:

- a. Provide without cost to the United States, all lands, easements, and rights-of-way necessary for construction of the project, including lands for spoil disposal areas, pumping station, and drainage systems;

b. Hold and save the United States free from damages due to the construction works;

c. Maintain and operate all the works after completion in accordance with regulations prescribed by the Secretary of the Army;

d. Provide without cost to the United States all alterations and replacements of existing utilities, including bridges, highways, sewers, and railroad modifications and relocations other than bridges and bridge approaches, which may be required for the construction of the project;

e. Prescribe and enforce regulations to prevent encroachment on both the improved and unimproved channel through Saxonville; and

f. Prohibit encroachment on ponding areas and, if the capacity of these areas is impaired, promptly provide substitute ponding capacity or equivalent pumping capacity without cost to the United States.

#### D. IMPROVEMENTS BY OTHER AGENCIES

5. DEPARTMENT OF AGRICULTURE. - The Soil Conservation Service of the U. S. Department of Agriculture developed two work plans for flood control works in the Sudbury River watershed. These plans were prepared under the authority of the Watershed Protection and Flood Prevention Act, Public Law 566, as amended, and provide for structural improvements for Baiting Brook and regulation of existing reservoirs for the upper Sudbury River watershed.

a. Baiting Brook Watershed. - Baiting Brook has a watershed drainage area of 3.4 square miles and discharges into the Sudbury River about 3 miles above Saxonville. The principal features of the approved work plan provide for construction of a flood retarding structure, improvement of 1,180 feet of stream channel and 0.24 miles of channel diversion and associated dike. The original work plan was revised in 1972 to reflect changes which had occurred since 1957. Construction works expected to start in 1973 would not have any appreciable effect on flood flows at Saxonville.

b. SuAsCo Watershed. - The approved work plan for flood control in the SuAsCo Basin (Sudbury, Assabet and Concord Rivers) would reduce flood damages by land treatment measures, construction of floodwater retarding structures in the Assabet River watershed, and drawdown and regulation of existing water supply reservoirs. The principal feature of this plan to reduce flooding along the Sudbury River provides for regulation of five existing reservoirs in the upper reaches of the Sudbury River watershed presently owned and operated by the Commonwealth of Massachusetts, Metropolitan District Commission. Flood control operations would be consistent with regulating the reservoirs in the interest of water supply and recreation for which they were originally constructed or set aside. Although there is little storage in the entire system specifically allocated for flood control, the reservoirs, as a result of their operation for water supply, have in the past provided a large modifying effect on floods. In addition, surcharge storage in the reservoirs and extensive natural-valley and swamp storage along the river also account for some reduction in flood peaks.

c. Flood Hazard Analyses Studies. - Under the authority of the Watershed Protection and Flood Prevention Act, Public Law 83-566, Section 6, and the provisions of Recommendation 9 (c) of House Document No. 465, 89th Congress, the Soil Conservation Service (SCS) is preparing flood hazard analyses studies in a coordinated program with the Massachusetts Water Resources Commission. The Upper Sudbury River flood hazard analyses study currently in progress and scheduled for completion later this year, is being prepared by the SCS for the Massachusetts Water Resources Commission, North-eastern Worcester County and Middlesex Conservation Districts and the towns of Ashland, Hopkinton, Southborough and Westborough, Massachusetts. The report will provide flood hazard information for the upper portion of the Sudbury River basin and an assessment of the flood problems and actions needed on the state and local level for the judicious use of lands in and adjacent to the flood plain. Major flood-prone areas will be identified and data will be included concerning history of flooding and pertinent existing state and local flood plain regulations.

6. COMMONWEALTH OF MASSACHUSETTS. - Following the August 1955 flood, the Commonwealth of Massachusetts made several channel modifications and repaired some bridges in the Sudbury River watershed. The modifications included removal of a bridge and realignment of the Sudbury River about one mile downstream from the site of the Saxonville local protection project and relocation and realignment of a section of the Sudbury River along the Framingham-Wayland town line to replace a meander in the river. In addition,

a section of Baiting Brook was relocated to replace a dog-leg where the stream has frequently overflowed its banks.

#### E. AUTHORIZED PLAN

7. DESCRIPTION. - The authorized plan for flood protection is shown on Plate 2-2. The local protection works for Saxonville would be located along the left bank of the Sudbury River, extending from the Saxonville Pond Dam at Central Street downstream to the Danforth Street bridge, a distance of about 3,800 feet. The project would include construction of 2,900 feet of earth dikes, 750 feet of concrete floodwalls, a vehicular flood gate, a railroad stoplog structure, a pumping station and appurtenant works. A section of the river channel between the railroad bridge and the Danforth Street bridge would be relocated and straightened for about 1,200 feet in length with a 60-foot bottom width.

Dikes and walls would have heights above the stream bed varying from 19 to 22 feet. A vehicular flood gate would be required at Concord Street and a stoplog structure at the railroad spur crossing. A pumping station having a discharge capacity of 16,000 gallons per minute (36 cfs) would be provided to handle local interior drainage including industrial waste water and seepage during flood periods.

8. LANDS AND DAMAGES. - The earth dikes and concrete walls would be constructed principally near the edge or within the left bank of the Sudbury River. The authorized plan would necessitate the taking of about 12 acres of land, one residential building and four storage sheds, and would make 6 acres of unproductive flood-prone land available for industrial use.

9. RELOCATIONS. - Construction of the project would not require relocation of any roads, highways, bridges or railroads. Relocation and modifications to existing utilities would be required.

#### F. CURRENT NEEDS AND DEVELOPMENT OBJECTIVES

##### 10. FLOOD CONTROL

a. Current Needs. - The Saxonville area is susceptible to destructive flooding caused by rain, melting snow, or a combination of both. The Sudbury River is characteristically sluggish due to its low stream gradient and flat marshy topography. While considerable attenuation of flood peaks is achieved as a result of this natural storage, backwater flooding can be expected due to

the high downstream tailwater conditions. The major floods of recent years have occurred as a result of hurricane-type storms. The flood of August 1955, which was approximately 50 percent greater than the previous flood of record, resulted from intense rainfall accompanying hurricane "Diane". Other major floods occurred in March 1936, July 1938, September 1954, and March 1968.

Industrial, commercial and residential properties have suffered damages from these five major floods in the past 37 years, resulting in disruption of a portion of the town's economy, and highlighting the need for protection for the Saxonville area. The flood of August 1955, the most damaging flood ever experienced in the Saxonville area, occurred when hurricane "Diane" dropped nearly 13 inches of rainfall over the Sudbury River watershed in three days. Subsequent flooding inundated 22 acres in the project area with depths of water up to 8 feet causing damages in excess of \$500,000. Losses were sustained by nine buildings of a large carpet company, seven commercial establishments, 23 residential properties and three public buildings. A recurrence of the August 1955 flood levels would cause losses in the project area estimated at about \$2,500,000.

Planning for urban renewal in Saxonville is currently under way. The Framingham Redevelopment Authority and the U. S. Department of Housing and Urban Development (HUD) have stated that the authorized flood control project is essential if the area is to be improved through redevelopment. The urban renewal project would provide desperately needed low and moderate-income housing at a cost of approximately \$3.3 million.

The major impact of the urban development would be the improvement of the social and economic climate afforded by flood protection, however, environmental enhancement would also be realized. The Sudbury River at the project site is being polluted by mill wastes and other forms of foreign material. The new sewage pumping station on Watson Place will relieve pollution by mill wastes. The river itself is normally of low gradient and sluggish. Downstream of the project site, the channel meanders with low gradient and velocity. These conditions result in the deposition of silt. The project would have a beneficial effect on the water quality of the Sudbury River by reducing the amount of eroded material added to the river, thereby elevating the environmental integrity of this section of Saxonville.

b. Development Objectives. - The primary objective of the local protection plan is to solve the flood problems of a major damage area in the Sudbury River watershed. The village of Saxonville is situated in a most vulnerable location susceptible to concentrated flood damages and suffers extremely high losses. The modified plan of improvement shown on Plate 2-3 would provide protection against the Standard Project Flood for industrial, commercial and residential properties as well as roadways and utilities along the left bank of the Sudbury River in the village of Saxonville. The project would be designed to control SPF flows of 11,900 cubic feet per second (cfs) downstream of Cochituate Brook and 10,000 cfs upstream of Cochituate Brook which are estimated to be about 2.3 times greater than the discharges of the maximum flood of record.

## G. ALTERNATIVES

### 11. CONSIDERED IMPROVEMENTS

a. General. - Following the August 1955 record flood in the Merrimack River Basin, the United States Senate authorized the Corps of Engineers to undertake a study of the flood problems in the area affected by this hurricane flood and determine possible corrective measures. These studies have resulted in the authorized flood control plan for local protection as shown on Plate 2-2. The flood plain lying within the U-shaped reach of the Sudbury River is the area in Saxonville most susceptible to flood damages and in need of flood protection. Alternative solutions previously considered in the pre-authorization studies were reviewed and updated during the Phase I-Plan Formulation investigations.

b. Flood Control Reservoirs. - Consideration was given to raising the existing Saxonville Pond Dam, located immediately upstream of the project, to provide flood control storage. Studies indicated it would be necessary to raise the dam about 24 feet to provide a flood storage capacity of 4.5 inches of runoff from the 86 square mile drainage area. Such storage would inundate Cushing State Hospital, the Framingham North High School, a large new shopping center, and costly residential and commercial areas. Due to such extensive disruption of existing properties and costly real estate requirements, no further consideration was given to this plan.

A site was investigated for constructing a new flood control dam and reservoir. The structure would be located in the town of Ashland on the Sudbury River about 5.5 miles below its headwaters at Cedar Swamp Pond and about 9 miles upstream of the Saxonville

Project. A substantial part of the drainage area above this site, principally in the Cedar Swamp, is a natural rainfall retention area and therefore reduces the need for additional flood control storage. This plan was abandoned when it was determined that the cost, including the real estate that would be acquired within the reservoir area, would be in excess of the benefits.

Another alternative considered increasing the height of the present Metropolitan District Commission (MDC) water supply dam of the Sudbury Reservoir located in the town of Southborough on Stony Brook just above MDC Reservoir No. 3. Raising the dam about 10 feet and the spillway about 5.5 feet would provide temporary storage for flood waters and reduce flooding along the Sudbury River in Framingham, as well as on both banks of the river in Saxonville. Investigations made in the field and meetings held with MDC officials revealed that the existing dam is now over 70 years old and signs of leakage are evident through the foundation and spillway structure. Studies of the original construction drawings indicated that severe foundation problems would be encountered in this type of construction. Further investigation determined that the most feasible solution to storing additional water in this reservoir would be to construct a new and higher dam just downstream of the existing dam and remove the old dam. However, this plan would result in less protection at Saxonville than that which would be provided by the authorized project. Therefore construction of a modified local protection project along the river in Saxonville would also be necessary. Costs estimated at \$16,000,000 for construction of a new dam and local protection works downstream at Saxonville were not economically justified when compared to the estimated flood losses and damages prevented.

c. Alternative Project Alignments.

(1) Left Bank Protection. - Alternative studies were made of reducing the project scope to determine the most feasible and economic plan of improvements by maximizing benefits. Several alternative alignments given consideration reduced the protected area and decreased project costs and benefits. One plan eliminated protection for the southerly portion of the authorized protected area omitting most of the vacant land as well as the paved parking area (refer to Plate 2-2). The earth dike would be located across the parking area and in back of the buildings situated south of Watson Place and west of Concord Street. A second alternative plan included the paved parking area but excluded the vacant land between the parking area and the Sudbury River.

Other alternative plans considered the protected area between the east side of Concord Street and the left bank of the Sudbury River. One plan would provide protection for the Saxonville Lumber Company but would exclude all the property north of Fuller Street. A second plan in this area would provide protection to the southerly half of the lumber company property excluding the northerly portion and the properties north of Fuller Street.

Finally, to complete this analysis of all possible plans of reduced protective areas, the above four plans, together with the authorized plan, were used in various combinations to make a total of nine alternative plans studied. The authorized plan provides for optimum protection both area-wise and benefit-wise and protection of the entire flood-prone area along the left bank of the Sudbury River between Central Street and Danforth Street. The plan also permits expansion in currently vacant land. The incremental benefits for the authorized plan over those of any of the alternatives are greater than the added costs.

(2) Right Bank Protection. - At the request of local interests, preliminary studies were made to include flood protection of up to 15 acres of flood plain on the right side of the Sudbury River in the vicinity of Concord Street, "A" Street, and on both sides of Cochituate Brook. Three plans were developed - one for protecting the entire 15 acres and two for protecting selected portions of the area. Improvements would consist of earth dikes, concrete flood-walls, highway and railroad gate closures, channel relocation, pumping stations and appurtenant structures. Owing to the extensively high construction costs estimated for providing flood protection from Cochituate Brook and the Sudbury River, benefits attributable to the improvements studied were evaluated to total about 20 percent of the cost.

d. Underground Conduit. - Also studied was a plan to construct an underground conduit to inclose the entire river from Central Street to Danforth Street, thereby providing flood protection benefits to property on both banks of the river. Two routes for this conduit were considered. The first would start at Central Street bridge and continue in the river bed for about 600 feet then turn easterly to pass under the Roxbury Carpet parking area, behind the buildings on the south side of Watson Place and Concord Street and re-enter the river bed under the Concord Street and railroad bridges, finally discharging through a stilling basin into a 60-foot wide realigned river channel to Danforth Street. Both sides of the improved river channel would require an earth dike extending from the conduit discharge structure to high ground on the right bank and to Danforth Street on the left bank. Cochituate Brook would be inclosed in a pressure conduit beginning at a point on the

brook which is at the same elevation as the design flood level in the Sudbury River, and entering the main conduit (under pressure during floods) just above its discharge outlet. Two pumping stations would be required for interior drainage, one each on the left and right banks. An advantage of this plan, in addition to providing full protection on both banks of the river, is that it would not require the high dikes and walls along most of the river bank nor the vehicular flood gate at Concord Street or stoplog structure at the railroad track.

The second route considered for this underground conduit starts at Saxonville Pond just above the dam with an intake structure and gate control house. The conduit would be constructed under and across Water Street, then along Central Street, across Concord Street, along Danforth Street, finally discharging into Sudbury River downstream of the Danforth Street bridge. As in the first plan described above, Cochituate Brook would be inclosed in a pressure conduit entering the main conduit just above its discharge outlet. A dam across the river downstream of Danforth Street at the discharge outlet would be needed to prevent backwater flooding and a large pumping station would be required for interior drainage. The same advantage applies to this as in the first described route. The disadvantage of this second route is that construction of the conduit under Danforth Street would be extremely difficult and costly because the street is narrow and the homes are close together on both sides and very close to the street line. In both routes the existing streambed would be modified to carry flow from Mill Pond Brook and from local runoff.

The cost of the underground conduit plan for each route studied was estimated at nearly three times that of the authorized plan. The additional benefits that would be derived from right bank protection are far too little to justify the additional cost. Further study of these plans was deferred.

e. Tunnel Diversion. - Consideration was given to diverting the flood water from Saxonville Pond to the Sudbury River in a diversion tunnel running parallel to and about 300 feet north of Danforth Street. The tunnel would be about 1,000 feet in length and have a 17-foot diameter with a concrete intake structure at Saxonville Pond and a stilling basin at the outlet to the Sudbury River. A dam would be required across the Sudbury River to prevent backwater flooding of the protected area. The dam would be about 300 feet in length and have a top width of 12 feet and a minimum height of 32 feet above the stream bed. Flood gates would be required in the dam to pass normal flows. During flood periods, a pumping station would discharge local interior drainage from a catchment of 2.6 square miles including flow from Cochituate Brook below Lake Cochituate. The discharges would be carried in pipelines passing

over the top of dam and down to the river. The existing outlet for Lake Cochituate would be modified to provide flood control storage in the lake. A flood control outlet would be constructed at the north end of Lake Cochituate to divert flows to the Sudbury River downstream of the project site. Although this plan would afford flood protection for the areas on both sides of the Sudbury River, it was estimated to cost over \$8,000,000. It is considerably more costly than the selected plan without providing a commensurate increase in benefits.

f. Zoning Restrictions. - Flood plain zoning would be a completely uneconomic solution to the Saxonville flood problems on the left bank of the river because of the high value of improvements that already exist in that area. Zoning to control development along the right bank of the river is possible. State enabling legislation permits the town to consider some form of zoning to control future development in this area. Evacuation of existing developments within the flood plain is unreasonable since the cost would be far in excess of the cost of flood protection and would cause major dislocation of the local economy.

g. Flood Warning and Evacuation. - A system to provide adequate warning to allow the temporary evacuation of people from the affected flood areas could be put into effect, but the system would be of little value. Flood warnings would inform people to leave prior to flooding conditions, but commercial and industrial establishments with their fixed equipment and large inventories would be inundated suffering excessive losses. Transportation would not be accessible and many utilities would be damaged and cease to function. The economic life of the area would be disrupted for many weeks. The permanent evacuation of this densely developed urban area is not practical or feasible as it would require the removal of millions of dollars worth of improvements affecting the existence and economics of the entire village of Saxonville and surrounding areas.

## 12. DISCUSSION

a. General. - Several alternative structural and non-structural flood control measures were analyzed to determine the most feasible and economical plan of protection. As a result of the study of alternatives, major emphasis was placed on providing local protection works in lieu of the various other corrective and preventive measures.

These alternative methods of solving the flood problems included flood control reservoirs, channel improvements, diversion and relocation of the Sudbury River, flood plain zoning, flood warning and evacuation and resettlement. Modifying existing reservoirs or constructing new reservoirs to provide flood control storage was found to be economically unsound due to the high construction costs and expensive real estate and development in the upstream area. Diversion and relocation of the river was found to entail inordinately high construction costs. Evacuation of the flood plain was also rejected as impracticable due to the high value of improved real estate. Flood plain zoning is possible in limited areas but appears impracticable in the densely developed area in Saxonville primarily along the left bank of the Sudbury River.

b. Improvements by Others. - The flood control improvements and measures provided by the Commonwealth of Massachusetts and those proposed by the Soil Conservation Service will aid in reducing flood flows in the watershed. However, in the occurrence of major floods, these flood control measures would not provide any significant reduction of river stages at the Saxonville project area.

Zoning regulations adopted by the communities in the upper Sudbury River watershed and State laws establishing encroachment lines to protect wetlands and flood plains against future urban development would reduce the effect of increasing flood discharges at Saxonville. Flood hazard information currently being developed by the SCS will provide an assessment of the flood problems in the upper watershed and actions required by state legislation and local laws to control and initiate wise-use of the flood plains.

13. CONCLUSION. - The most practical solution to the flood problem in the Saxonville area consists of construction of dikes, flood walls, pumping station and channel improvements to provide protection from the Standard Project Flood. This plan provides a high degree of flood protection, meets the desires of local interests and in comparison with alternatives investigated, is the optimum plan affording enhancement of the environment, social well-being and economic growth in the Saxonville area.

#### H. INVESTIGATIONS

14. PREVIOUS INVESTIGATIONS. - The land and water resources of the Merrimack River Basin have been considered in the following reports:

a. "308" Report. - A report dated 1 December 1930 and printed as House Document No. 649, 71st Congress, 3rd Session, considered the needs for flood control, navigation, water power and irrigation on the Merrimack River in New Hampshire and Massachusetts. The report concluded that improvements were not economically warranted at that time.

b. 1938 Report. - A report by the Chief of Engineers dated 18 May 1938 and printed as House Document No. 689, 75th Congress, 3rd Session, presented a plan for flood control of the Merrimack River Basin. Based on report findings, the 1938 Flood Control Act modified the Flood Control Act of 1936 and authorized the construction of a system of flood control reservoirs and related flood control works which may be found justified by the Chief of Engineers. The present constructed reservoir system consists of four dams located in New Hampshire: Franklin Falls; Blackwater; Edward MacDowell; and Hopkinton-Everett. Local protection works were completed at Lincoln and Nashua, New Hampshire and Lowell, Haverhill and Fitchburg, Massachusetts.

c. NENYIAC Report. - Flood control and allied water uses were also considered in Part 2, Chapter XV, "Merrimack River Basin," of The Resources of the New England-New York Region. This comprehensive report inventoried the resources of the New England-New York area and contained a master plan to be used as a guide for the regional planning, development, conservation and use of land, water and related resources of the region. Prepared by the New England-New York Inter-Agency Committee, the report was submitted to the President of the United States by the Secretary of the Army on April 27, 1956. Part 1 and Chapter I of Part 2 are printed as Senate Document No. 14, 85th Congress, 1st Session.

d. Saxonville Survey Report. - The Interim Report on Review of Survey for Flood Control, Merrimack River Basin, Saxonville Local Protection, Sudbury River, Framingham, Massachusetts, was completed by the New England Division in 1965 and subsequently printed as Senate Document No. 61, 89th Congress, 1st Session. This document served as a basis for authorization of the Saxonville Local Protection Project.

e. Merrimack River Basin Survey Report. - The Water Resources Investigation Survey Report on Merrimack River Basin, New Hampshire and Massachusetts was completed by the New England Division on 25 August 1972 and reviewed by the Board of Engineers for

Rivers and Harbors on 20 November 1972. Studies revealed that additional improvements in the basin for flood control, navigation, and allied purposes are not economically feasible at this time. Furthermore, unrestricted development and encroachment in the flood plain were increasing the flood problem and it was suggested that New Hampshire and Massachusetts make every possible effort to implement non-structural programs promoting prudent use of the flood plain. Conclusions to the report recommend that no additional Federal improvements be undertaken in the Merrimack River Basin at this time and current Congressional laws and Federal authorizations are available to assist local interests upon request in planning and implementing flood plain management measures.

15. POST-AUTHORIZATION INVESTIGATIONS. - In order to reaffirm the authorized general plan and/or to reformulate the scope of the Saxonville Local Protection Project to meet present-day conditions and criteria, basic data extracted from previous studies and past reports were fully utilized. Additional studies have been made as follows:

a. Project Scope. - Basic planning decisions made in the general investigations stage have been reviewed, updated and supplemented by field surveys and conferences with local officials. Project coordination has been maintained with other governmental and state agencies as well as local interests. Environmental impacts and effects of the flood control works, project features and cost estimates have been reviewed and updated.

b. Hydrologic Studies. - Previous investigations were reviewed, updated and supplemented with additional data developed from information based on current site conditions. Detailed hydrologic analyses have been made to determine stream flow, flood development, project design flood, criteria for interior drainage, and pumping requirements. The methodology and results of these studies are presented in Design Memorandum No. 1, Hydrologic Analysis which has been submitted for review on 12 December 1972 and approved on 23 February 1973.

c. Damage Surveys. - Previous flood damage surveys in the Sudbury River flood plains were reviewed and updated to conform with current physical and economic conditions. Detailed analysis of potential flood losses and damages has been made and flood prevention benefits have been revised and updated accordingly.

d. Lands and Damages. - Previous appraisals of lands and damages have been reviewed, revised and updated in accordance with current criteria, present site conditions, and current real estate values in the project area.

e. Geologic and Soils Investigations. - Information derived from subsurface explorations made in the pre-authorization investigations was reviewed. Geologic investigations were made during post-authorization planning of foundation conditions at selected locations along the banks and within the Sudbury River for the proposed dikes, walls and channel improvements. Detailed data derived were used to substantiate or modify previous information considered in determining project construction features and costs.

f. Official Meetings. - Meetings were held with Framingham town officials and the Framingham Redevelopment Authority to keep them advised of the project features and to exchange ideas as well as coordinate the proposed improvements. Information concerning non-Federal project cost has been discussed with the Framingham Town Selectmen and other local officials.

g. Public Meeting. - The most recent public meeting was held in Framingham, Massachusetts on 30 November 1972 to exchange information concerning the authorized flood control plan and to procure the objectives and needs of interested parties as well as their preferences regarding alternative development. Information was also requested on economic, social, ecological and environmental impacts relative to the project.

The meeting was attended by about 35 people. Eleven individuals, representing Federal, state, town and civic interests, spoke or participated in the discussion. Most of those in attendance expressed no objection to flood protection improvement in the Saxonville area. An official of the town of Wayland noted concern about the impact on future flooding in flood plains located downstream of the project. Two other individuals were concerned as to what effect the project would have on the wildlife and ecological conditions of the area.

16. FUTURE INVESTIGATIONS. - Detailed design of the recommended project plan will require additional studies and investigations prior to construction. Additional topographic surveys of the project site will be accomplished and the subsurface exploration program will be expanded. General Design Memorandum, Phase II - Project Design will be prepared to present general data in more detail on the components, functions, costs and benefits of the Saxonville Local Protection Project. The report will serve as a basis for further detailed design studies which will be included in subsequent feature design memoranda. Construction plans and specifications will be prepared following review and approval of design memoranda.

## I. PLAN FORMULATION

17. GENERAL. - The prime purpose for flood control improvement along the Sudbury River is to reduce flood damages in the densely developed urban area of Saxonville. Previous discussion of alternatives in Section G of this report eliminated the practicality of providing flood protection by means other than that provided by the recommended project plan. Although the reason for rejecting the alternatives was primarily economic, it did not preclude consideration of environmental and social matters. Evacuation, flood proofing or extensive restrictive zoning of the flood plain is impracticable due to the advanced stage of development. The construction of earth dikes or concrete floodwalls on the right bank would not create any more beneficial or adverse impact on the environment than the improvements proposed for the left bank. However, construction of underground conduits or diversion tunnels to retain the river would adversely affect the aesthetic and recreational values of the stream in the future when water quality and channel improvements are achieved.

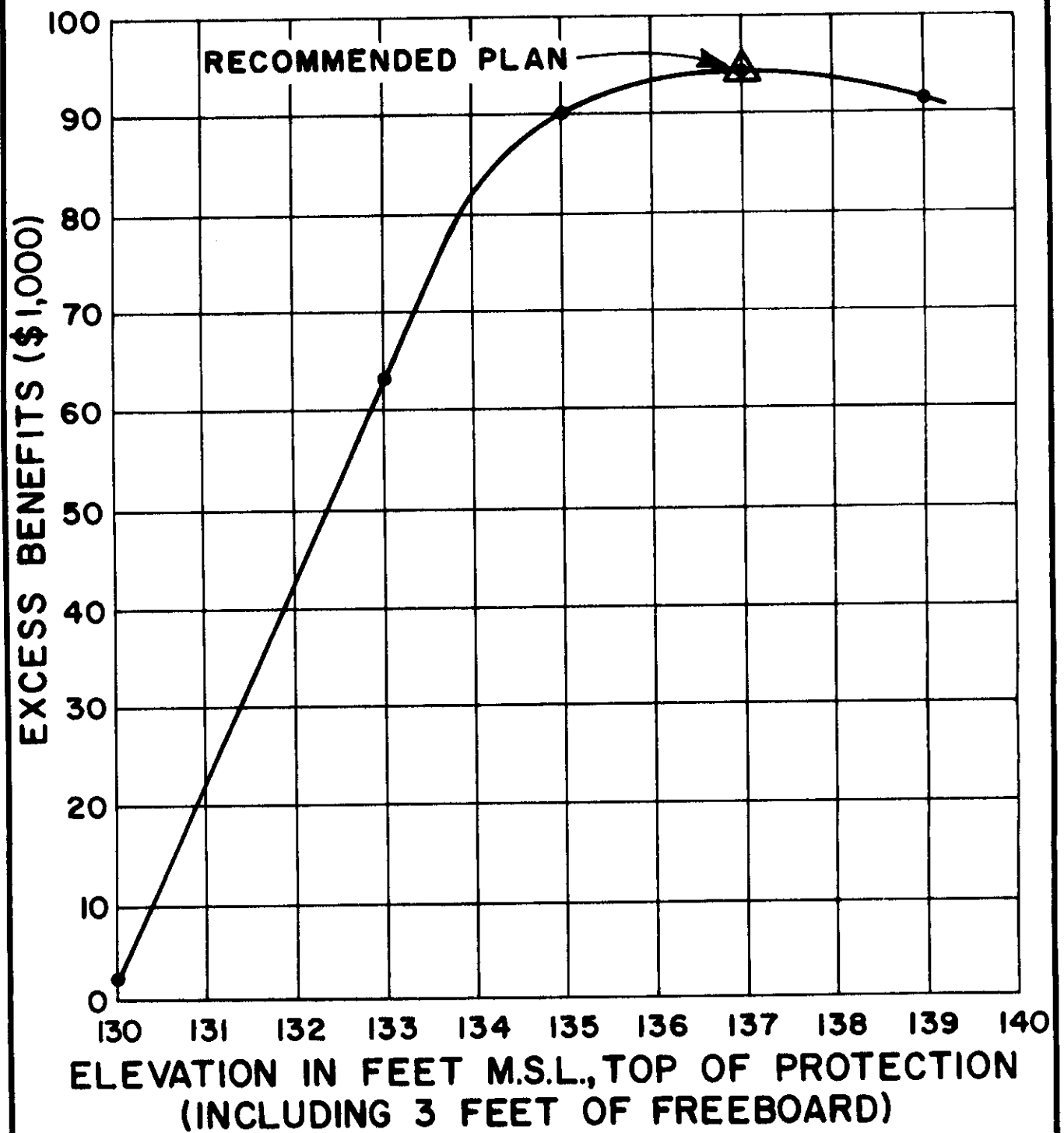
18. PROJECT FORMULATION CONSIDERATIONS. - Economic, engineering and environmental considerations entered into the project formulation studies for this memorandum. The recommended plan is designed to protect the project area against floods up to the size of the Standard Project Flood. The SPF is intended as a practicable expression of the degree of protection that should be sought whenever possible in the design of flood control works for communities where protection of human life and unusually high-valued property is involved. To determine the economically optimum plan, a study was made of the effect of varying heights of flood protection greater or less than the Standard Project Flood.

19. PLANS CONSIDERED FOR OPTIMIZING EXCESS BENEFITS. - Studies made considered design flood elevations upstream of Concord Street of 127, 130, 132, 134 (SPF elevation) and 136 feet, mean sea level. These elevations represent frequencies of flooding once every 25, 100, 250, 500 and 1,000 years, respectively. Costs, benefits and excess benefits were derived for all five plans of flood protection including three feet of freeboard. The results of the studies are shown in Table 1 and graphically on the following chart which shows excess annual benefits for various elevations of flood protection including freeboard. The curve indicates that the point of maximization of the net benefits would be achieved with a project based on protection to Standard Project Flood with top of dikes and walls at elevation 137 feet mean sea level which would provide protection against floods of up to a 500-year frequency.

TABLE I  
EXCESS BENEFITS

Upstream of Concord St.

	<u>Design Flood Elev.</u>	<u>Top of Protection Elev.</u>	<u>Total First Cost</u>	<u>Annual Cost</u>	<u>Annual Benefit</u>	<u>B/C Ratio</u>		<u>Excess Benefit Over Cost</u>
	127	130	\$ 2,960,000	\$ 107,000	\$ 109,000	1.02	+	\$ 2,000
	130	133	3,220,000	116,000	179,000	1.5	+	63,000
20	132	135	3,360,000	121,000	211,000	1.7	+	90,000
	134	137	3,600,000	130,000	224,000	1.7	+	94,000
	136	139	4,000,000	144,000	235,000	1.6	+	91,000



SAXONVILLE LOCAL PROTECTION

EXCESS BENEFITS CURVE

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20. ENVIRONMENTAL CONSIDERATIONS. - The waters of the Sudbury River upstream of the project area are sufficiently clean and of good quality and presently used for recreational purposes. Furthermore, many of the upstream lakes are currently used for domestic water supply by the Metropolitan District Commission. However, the river in the project area is of poorer quality and polluted. The Roxbury Carpet Company has been discharging water from its dye house thereby polluting the river at Saxonville and adversely affecting recreational and fishery resources. Under the state law requiring a permit to discharge pollutants into the stream, the Roxbury Carpet Company has stated its plan to transport the dye house water to a new sewage pumping station on Watson Place presently being constructed by the town of Framingham with provision to receive this waste water. With the river cleaned up, the aesthetics and potential recreational features in the area would improve. The need for and potential use of this stretch of river would increase when additional housing units are constructed in the urban renewal project between Concord Street and the Sudbury River.

21. PROJECT FORMULATION. - Construction of the Saxonville Local Protection Project represents the optimum development for the preservation and enhancement of the urban environment. Officials of the town of Framingham are very much concerned with the probability of again suffering extensive flood damages as experienced during the 1955 record flood. On several occasions local officials have indicated their willingness and readiness to financially participate in the construction of the project as recommended in this report. The flood control features which comprise the most feasible and economical solution to the flood problem will provide a high degree of protection for the densely urbanized community of Saxonville and represent the maximum excess of tangible benefits over costs. The recommended project is economically justified with a benefit to cost ratio of 1.7 to 1.0.

#### J. COORDINATION

22. GENERAL. - The following Federal, state and local agencies were asked to furnish their views, and letters received incorporating pertinent comments are included in Appendix A:

- U. S. Environmental Protection Agency
- U. S. Dept. of Agriculture, Soil Conservation Service
- U. S. Dept. of Commerce, New England Regional Commission
- U. S. Dept. of Housing and Urban Development
- U. S. Dept. of the Interior, Bureau of Outdoor Recreation
- U. S. Dept. of the Interior, Fish & Wildlife Service
- U. S. Public Health Service, Environmental Health Service

Advisory Council on Historic Preservation  
Mass. Dept. of Natural Resources  
Mass. Dept. of Public Works  
Mass. Division of Fisheries and Game  
Mass. Historical Commission  
Mass. Office of Environmental Affairs  
Mass. State Reclamation Board  
Mass. Division of Water Pollution Control  
Mass. Water Resources Commission  
Framingham Dept. of Public Works  
Framingham Board of Selectmen  
Framingham Redevelopment Authority  
New England River Basins Commission

23. SUMMARY OF VIEWS. - Comments received from the above agencies are favorable to the project plan and were given consideration in the preparation of this report. The U. S. Fish and Wildlife Service and the Massachusetts Division of Fisheries and Game report that the project would not significantly affect fish and wildlife resources nor is there opportunity for enhancement of these resources.

The Massachusetts Historical Commission states that no historic places listed or contemplated would be affected by the project. The Massachusetts State Reclamation Board reports that the project would pose no additional mosquito problem in the area and it might improve the situation.

The U. S. Soil Conservation Service suggests that appropriate measures be taken to control erosion and sedimentation during construction and all disturbed soil areas be promptly vegetated as construction is completed. The Massachusetts Department of Natural Resources endorses the project and indicates the channel improvement works can result in aesthetic enhancement rather than degradation. The Massachusetts Division of Water Pollution Control approves the project and states the plan will provide multiple benefits, including flood protection for the new sewage pumping station which is of primary importance in the clean-up effort on the Sudbury River.

The Framingham Board of Selectmen have stated their approval of the project and willingness to cooperate and participate. The Framingham Redevelopment Authority stated the project plan is essential to their urban renewal plan and desire early project construction to protect and coordinate the proposed housing development.

24. U. S. ENVIRONMENTAL PROTECTION AGENCY. - Advance copies of the Phase I - Plan Formulation report including the Environmental Statement dated 12 July 1971 were submitted to the Regional Administrator, Region 1, Environmental Protection Agency, (EPA) for review. Their letter of comment dated 3 April 1973 is included in Appendix A as Exhibit 1. It was noted that based on the information presented in the environmental statement, the EPA was not aware of any significant adverse environmental impacts of the local protection project. However, the Agency was concerned with the long-range effectiveness of the project relative to future filling and development of natural water storage areas in the upper watershed.

Obviously, relentless encroachment on the flood plains and filling of swamps in the upper watershed would have the effect of increasing flood discharges at Saxonville. However, the proposed local protection works will have a minimum freeboard of at least two feet which would theoretically provide a channel capacity, 40% greater than the design standard project flood. With this high capacity, the project is considered adequate in design for future conditions even with conceivable loss of portions of the upstream storage areas.

Cedar Swamp, a large wetland area of approximately 1,375 acres located in the headwaters of the Sudbury River, controls 19.3 square miles of drainage area. The flood hazard analyses study by the U. S. Department of Agriculture, Soil Conservation Service, noted in Section D of this report, will define the importance of Cedar Swamp and other natural water storage areas for flood control in the basin.

The towns of Westborough, Southborough, Hopkinton and Ashland in the upper Sudbury River watershed have adopted zoning authorized by the Zoning Enabling Act, Chapter 40A of the Massachusetts General Laws which provides the necessary authority for regulating the use of the flood plains. In addition State laws are available to protect wetlands and flood plains against unwise urban development. Chapter 131, Section 40A of the General Laws of Massachusetts, as amended by Chapter 782 of the Acts of 1972, gives the Massachusetts State Commissioner of Natural Resources the authority to protect inland wetlands and flood plains by establishing encroachment lines for the purposes of preserving and promoting public safety, private property, wildlife, fisheries, water resources, flood plain areas and agriculture. The Commissioner may adopt orders regulating, restricting or prohibiting the altering or polluting of inland wetlands by designated lines within which no obstructions or encroachment would be permitted without prior approval.

## K. ENVIRONMENTAL ANALYSIS

25. ENVIRONMENTAL CHARACTERISTICS. - The village of Saxonville is situated in the northeasterly part of Framingham, Massachusetts, on the Sudbury River, a tributary in the North Nashua River Basin. The Sudbury River drains 166 square miles, flows easterly and then northerly, joins with the Assabet River and forms the Concord River. Topography makes the project location subject to floods.

Industrial and commercial activity in the village of Saxonville is concentrated along the stretch of the Sudbury River which runs between Central Street and Danforth Street. The river in this reach follows an irregular "U" shaped course flowing generally from Central Street, first southerly, then easterly and then northerly. Approximately 60 acres of urban property on both sides of the stream are subject to flooding according to the Standard Project Flood criteria. The densely settled portion of the village is built on low-lying land on the left bank, inclosed by the river bend. On the opposite bank, newer facilities reflect continuing growth in the area.

The Sudbury River at the project site is being polluted by mill wastes from the Roxbury Carpet Co. and runoff from urban complexes. The river itself is normally of low gradient and sluggish. Downstream of the developed reach of the river, the channel is meandering with low gradient and velocity. These conditions result in the deposition of silt. Fish and wildlife resources are limited to a few trees and shrubs. The fishing resources of the river in the project area have been all but eliminated by industrial and local pollution.

26. PROJECT IMPACT. - The U. S. Department of the Interior, Bureau of Sport Fisheries and Wildlife, have reported that the project would have no adverse effects upon fish and wildlife resources and it offers no opportunity to benefit these resources. The flood plain area to be protected by the flood control project is already committed to urban uses. There is no possibility of a reversal of the urbanization process and a restoration of the natural environment which once characterized the area. However, it is possible to improve the aesthetics of the project area. An improvement will result from the elimination of an unsightly channel, from project features of competent architectural and landscape design, and from the inclusion of public use features in the project wherever possible.

Indirectly, the project will have beneficial effects on the adjacent areas by providing an environment more conducive to businesses and residential uses because of the elimination of the flood problem.

The local economy should benefit by the improved aesthetics in the area. The pumping station will be designed primarily according to the practical demands of the project but attention will be given to aesthetic details to provide architectural compatability with the surrounding area particularly in light of the urban environment. The concrete floodwall and landscaped earth dike would minimize the danger of flooding in the low-lying area and prevent the destruction of developed properties and the existing hazards to life.

The water quality of the Sudbury River would be improved by reducing the amount of eroded material added to the river. Abatement of pollution in the river would be hastened as a result of the proposed project. At present, process water from the factory dye house is dumped into a pond under the building whence it is discharged into the river. Officials of the Roxbury Carpet Company have been advised of this condition and requested to correct the situation of dumping pollutants into the river. As a result of these actions, the Roxbury Carpet Company has initiated a plan to construct a settling basin to separate the solids from the dye house discharge and then conduct the liquid to the new sewage pumping station at Watson Place.

The aesthetics of the area will be enhanced by the improved water quality. Since the environment is mostly man-made, consisting of factories and commercial establishments, the improvements will not detract anything from the scenery. Instead, neatness, control and order will displace an unsightly and undesirable condition.

During project construction noise, increased siltation and dust resulting from moving equipment and traffic congestion will be minimized and controlled as much as possible. Mitigative measures will be specified to minimize adverse impact on the local environment. Some vegetation will be destroyed in the area of the channel improvement. This condition will prevail until revegetation can be accomplished.

27. PUBLIC USE AND ENVIRONMENTAL ASPECTS. - During Phase I studies and investigations, consideration was given to certain limited use facilities for the public that could be developed along the project right-of-way. A walkway might be constructed along the dike top, or a small sit-in-park could be favorably located, or some other such public use facility could be part of the project. Because of the limited scope of the project and the changes in the area currently being considered for urban renewal, no such use has been firmly formulated to date. However, the possibility will be pursued during Phase II design.

Topsoiling, seeding and landscape planting will be an integral part of the design to insure that the completed project is as visually acceptable as possible. Disturbed areas not otherwise treated by paving or rock protection will be revegetated.

28. ENVIRONMENTAL IMPACT STATEMENT. - In compliance with the National Environmental Policy Act of 1969, a draft of the Environmental Statement on the environmental aspects of the Saxonville Local Protection Project was submitted to the President's Council on Environmental Quality on 14 April 1971 and the final statement filed on 15 August 1971. A copy of this Final Environmental Statement, dated 12 July 1971, is included as an attachment.

#### L. PROJECT PLAN

29. GENERAL. - The recommended local protection project would be located along the left bank of the Sudbury River, extending from the Saxonville Pond Dam at Central Street to the Danforth Street bridge, a distance of about 3,800 feet. Proposed project features consist of about 2,650 feet of earth dikes, 1,270 feet of concrete floodwalls, 1,200 feet of channel realignment, a pumping station, a vehicular flood gate, a railroad stoplog structure, interior drainage and other appurtenant works. The flood control works would protect the developed industrial, commercial and residential area within the U-shaped bend of the river against the standard project flood with a minimum of two feet and up to three feet of freeboard. Project plans and details are shown on Plates 2-3 to 2-5. Local interests will be required to maintain and operate all the works after completion in accordance with regulations prescribed by the Secretary of the Army.

30. EARTH DIKES. - The dikes would have a top width of 12 feet and slopes of 1 on 2-1/2 riverside and 1 on 2 landside as shown on Plate 2-4. The major portion of the dikes would be constructed of compacted earth fill with slope protection consisting of 12 inches of protection stone on 12 inches of gravel bedding on the riverside and 6 inches of seeded topsoil on the landside. Trash, debris and soft materials within the limits of the earth dike will be excavated and removed from the site.

31. CONCRETE FLOODWALLS. - The floodwalls would consist of I-type, L-type, T-type and gravity-type concrete walls as shown on Plate 2-3. The height of walls along the river edge would vary from 20 to 24 feet above the stream bed. The L-type concrete flood wall would be constructed along the riverside face of the existing mill building with a

transitional change to a T-type concrete flood wall as the wall alignment angles away from the existing building. There would also be a T-type wall along the bank of the river for several hundred feet upstream of Concord Street bordering on a high cost commercial property. Cantilever I-type walls of concrete caps and steel sheet piling would provide transitions between the concrete flood walls and earth dikes. The concrete wall located north of Central Street and east of Saxonville Pond Dam would consist of a gravity type wall with a sluice gate for flood control. At the downstream end of the project along Danforth Street, a gravity-type concrete wall will be constructed to serve jointly as a floodwall and retaining wall for the end of the dike. Consideration was given to providing a sand bag closure across Danforth Street and continuing the dike an additional 300 feet to high ground. However, since an SPF condition would have only about one-foot of water on Danforth Street, it was considered both economical and feasible to omit the added 300 feet of dike and provide sandbags to be used from the end of the flood wall along Danforth Street to high ground, a distance of about 40 feet.

32. CHANNEL REALIGNMENT. - Channel improvement would consist of relocating and straightening the existing channel to provide a straight dike alignment from the Penn Central Railroad bridge to the Danforth Street bridge. The new channel would be trapezoidal in cross section with a 60-foot bottom width as shown in section detail on Plate 2-4. Channel excavation depths will average about 6 feet with a maximum cut of 12 feet occurring at the existing earth mound located downstream of the confluence of Cochituate Brook with the Sudbury River. As part of the excavation, turbidity and siltation will be minimized by careful construction techniques and the excavated earth surfaces will be re-vegetated.

33. VEHICULAR GATE. - A vehicular flood gate closure would be located at the intersection of the project alignment and Concord Street. The closure would consist of the two miter-type steel swing gate leaves about 9 feet in height, hinged to concrete abutments as shown on Plate 2-5. The gates when not in use would be stored in the concrete abutments thereby providing a clear opening of 50 feet for vehicular traffic and sidewalks. In a closed or operating position the gate leaves will form a 60 degree angle with the centerline of Concord Street.

34. STOPLOG STRUCTURE. - A stoplog closure would be constructed at the intersection of the project alignment and the railroad spur track. The structure would have a clear opening of 22 feet to permit passage of freight trains through the flood protected area during normal periods. Stoplogs would be provided and, in time of floods, would be placed in

slots of the concrete abutments at each end to form a closure for flood waters. When not in use, the stoplogs will be stored in a semi-portable metal building located close to the stoplog structure. Final design of the structure will be coordinated with the railroad company.

The current urban renewal project of the Framingham Redevelopment Authority includes the area from Concord Street easterly to the flood control dike. Incorporated in the redevelopment plan is the removal of the Penn Central railroad spur tracks and the relocation of the lumber company presently served by the rail line. Correspondence received from the Penn Central Railroad Company stated that the rail line will remain in service until it is no longer required. The railroad closure structure will be included as a project feature until it is definitely determined that the railroad spur track will be removed.

35. PUMPING STATION. - A pumping station for discharge of interior drainage and seepage would be located at the undeveloped southern end of the Roxbury Carpet Company property. The structure as shown on Plate 2-5 would house two axial flow pumps, each capable of discharging 10,500 gpm. Normal runoff from approximately 35 acres of high ground would be conducted to the Sudbury River through a 48-inch diameter, reinforced concrete pipe. During flood periods, interior drainage and seepage would be pumped through two 20-inch diameter, coated steel pipes over the earth dike to the Sudbury River. The 48-inch gravity discharge pipe would be provided with a sluice gate on the riverside of the dike and a flap gate on the discharge end of the pipe at the bank of the river.

36. INTERIOR DRAINAGE. - Construction of the recommended plan of protection would cause disruption of interior drainage and drain lines, which now discharge directly into the Sudbury River, thus necessitating the construction of an interceptor drain on the landside of the protective structure. The interceptor drain will conduct seepage through the dikes and walls, and interior runoff from the protected area, to the pumping station. In normal periods, waters from the interceptor drain line would pass by gravity flow to and through the pumping station and discharge line into the river. During flood periods, waters from the interceptor drain line at the pumping station would be diverted by sluice gates into the pumping inlet chamber and pumped over the dike to the river.

The interceptor drain line would be constructed of reinforced concrete pipe varying in size from 12-inches to 36-inches in diameter. A storm drain that presently discharges onto the lowland at the site of the flood control pumping station would be extended to the interceptor

drain. Manholes and drain inlets would be required along the drain line and at the intersection of other pipelines presently discharging directly into the river. Provision has been made by the town of Framingham in the construction of the new sewer pumping station on Watson Place to receive industrial waste water.

37. LANDS AND DAMAGES. - The areas to be acquired for project purposes total about 19 acres. About 11-1/2 acres would be acquired in fee or easement comprising residential, industrial and commercial lands as well as including about 2 acres of river bottom and roadways.

Project structures would require about 7 acres. Approximately 7-1/2 acres would be required for temporary easements utilized in conjunction with project construction of which about 5-1/2 acres are in the water and on roads. An older two-story wood frame warehouse including fuel storage tanks and pumps presently owned by a local coal and oil company would be acquired.

38. UTILITY RELOCATIONS. - Construction of the vehicular gate at Concord Street would require modifications to the existing sewer, water and gas lines and relocation of a utility pole.

39. HYDROLOGIC AND HYDRAULIC CONSIDERATION. - The project will be designed for the standard project floodflow on the Sudbury River of 11,900 cubic feet per second downstream of Cochituate Brook and 10,000 cubic feet per second upstream of Cochituate Brook. More detailed hydrologic analysis has resulted in a significant increase in the Standard Project Flood (SPF) over that reported in the 1965 Survey Report. The SPF discharge developed during preauthorization studies was derived from a rainfall-runoff relationship at Saxonville, based on the experienced August 1955 rainfall and flood discharge. In the 1965 analysis, it was assumed that the storage effect of a system of existing upstream reservoirs on the SPF would be somewhat proportional to their effect on the 1955 flood. It was recognized that a more comprehensive reservoir system analysis would be made in post-authorization studies. This more detailed study was performed and assumed that all reservoirs would be full and outlet gates closed as contrasted to the storage availability during the August 1955 flood. This resulted in an increase in the SPF discharge at Saxonville. Discussion of the reservoir system study and the revised SPF is included in Design Memorandum No. 1, Hydrologic Analysis.

40. DEGREE OF PROTECTION. - This project would provide standard project flood protection for about 23 acres along the left bank of the Sudbury River in the village of Saxonville.

#### M. COST ESTIMATES

41. GENERAL. - Estimates of cost include all features necessary for completion of the project and are based on computed quantities and current unit prices. A detailed breakdown of the estimate for each feature and sub-feature, showing quantities and unit prices, contingencies, engineering and design and supervision and administration for both Federal and non-Federal costs, is given in Appendix B.

42. FIRST COSTS. - Unit prices used in estimating construction costs are based on average bid prices for similar work in the same general region, adjusted to the 1973 price level. Valuations of real estate are based on information from local officials reflecting values in recent sales in the area and updating previous land costs including additional costs for resettlement and acquisition as required by Public Law 91-646. All construction costs include an allowance of 20 percent for contingencies. Costs for engineering and design and supervision and administration are estimated lump sums based on knowledge and evaluation of the site and experience on similar projects. A summary of first costs for the selected plan is given in Table 2.

43. ANNUAL COSTS. - Average annual costs, also summarized in Table 2, are based on an interest rate of 3-1/4 percent. The Framingham Board of Selectmen furnished satisfactory assurances by letter dated 30 May 1969 in conjunction with the Water Resources Council's policy on revised interest rate for water resources projects. (See Appendix A, Exhibit 14.) Investment costs are amortized over the 100-year assumed economic life of the project. Allowances are made for costs of maintenance and operation and for interim replacement of equipment having an estimated life of less than 100-years.

44. COST APPORTIONMENT. - First costs to local interests are estimated at \$390,000 including lands and damages and utility relocations. The Federal first cost of the project is estimated at \$3,210,000. Annual costs for maintenance and operation of the project, which are specific items of local responsibility, are estimated at \$7,800 including \$3,700 for interim replacements of equipment.

45. COMPARISON OF ESTIMATES. - The current cost estimate of \$3,600,000 reflects an increase of \$530,000 since the last reported estimate in the PB-3 of 1 July 1972 which amounted to \$3,070,000. Table 3 outlines and explains the changes.

TABLE 2

SUMMARY OF FIRST COSTS AND ANNUAL COSTS  
(January 1973 Price Level)

<u>Project Features</u>	<u>Estimated Cost</u>
<u>Federal</u>	
Levees and Flood Walls	
Land Dikes	\$ 1,055,000
Floodwalls	760,000
Vehicular Gate	275,000
Stoplog Structure	65,000
Channel Realignment	60,000
Drainage Facilities	<u>145,000</u>
	\$ 2,360,000
Pumping Station	<u>195,000</u>
Total Direct Federal Costs	\$ 2,555,000
Engineering and Design	405,000
Supervision and Administration	<u>250,000</u>
Total Federal Cost	\$ 3,210,000
<u>Non-Federal</u>	
Lands and Damages	\$ 375,000
Utility Relocations	<u>15,000</u>
Total Non-Federal Costs	\$ 390,000
TOTAL FIRST COSTS	\$ 3,600,000
<u>Annual Costs</u>	
Interest & Amortization	\$ 122,200
Maintenance and Operation	4,100
Interim Replacements	<u>3,700</u>
TOTAL ANNUAL COSTS	\$ 130,000

TABLE 3

COMPARISON OF ESTIMATES

<u>Project Feature</u>	<u>Project Document</u>	<u>PB-3 1 July 1972</u>	<u>Recommended Project Plan</u>	<u>Change</u>
01. Lands and Damages	\$ 185,000	\$ 370,000	\$ 375,000	+ \$ 5,000
02. Relocations	5,000	20,000	15,000	- 5,000
11. Levees and Flood Walls	959,000	1,920,000	2,360,000	+ 440,000
13. Pumping Plant	120,000	220,000	195,000	- 25,000
30. Engineering and Design	135,000	340,000	405,000	+ 65,000
31. Supervision and Administration	<u>86,000</u>	<u>200,000</u>	<u>250,000</u>	+ <u>50,000</u>
<b>TOTAL COST</b>	<b>\$ 1,490,000</b>	<b>\$ 3,070,000<sup>(1)</sup></b>	<b>\$ 3,600,000<sup>(2)</sup></b>	<b>+ \$ 530,000</b>

(1) The cost increase in construction features between the project document and the PB-3 (1972) was based on price escalation from 1964 to 1972. The E&D and S&A cost increases were due to reanalysis of requirements and to Federal pay increases.

(2) Increases are due to the need for higher dikes and floodwalls because of the revised SPF and to the reanalysis of unit prices. Costs for lands and damages are based on current field appraisals. The E&D and S&A cost increases are due to the added features of preparing the Phase I report and the Environmental Analysis, and to Federal pay increases.

## N. ECONOMICS

46. GENERAL. - The village of Saxonville is located in the north-eastern part of Framingham, the most populous and one of the fastest growing towns in Massachusetts. Once the prototype of the New England mill town, the large industrial plant with housing and appurtenant commercial facilities crowding up to the employment source, Saxonville is now a growing bedroom suburb of Greater Boston like much of the rest of Framingham. The village center lying on both banks of the Sudbury River at Concord Street bridge is in a transition state; commercial activities are growing at the expense of obsolete housing. Beyond the commercial development, new housing is being erected. Part of the commercial development and even some of the new housing is in or is immediately adjacent to the flood plain.

47. FLOOD LOSSES. - High water stages on the Sudbury River flood both banks in the vicinity of Concord Street. The topography of the area is such that the flood plain is relatively narrow and deep on the left bank and broader and much shallower on the right bank.

In August 1955, the area was flooded to elevation 129.6 feet m. s. l. at the Concord Street bridge, the highest known flood elevation ever attained here. Depths of flooding of up to 8 feet were experienced on the left bank and depths of up to 5 feet occurred on the right bank. A review of flood losses in the Saxonville area was made in the summer of 1972. Based on this review, a recurrence of the August 1955 flood stages under current physical and economic conditions in Saxonville would cause an estimated loss of \$2,666,000, with \$2,500,000 occurring on the left bank and the balance of \$166,000 occurring on the right bank. Nine buildings of a large industrial plant would be flooded on the left bank as well as 8 commercial establishments, 22 residential properties, some of which are multi-family, and 3 public buildings. On the right bank some 20 commercial properties and 5 residential properties would be flooded and at a slightly higher stage a new complex of apartment buildings would be damaged.

48. TRENDS OF DEVELOPMENT. -

a. Roxbury Carpet Company. - In January 1973, officials of the Roxbury Carpet Company publicly announced the closing of the plant and operations by the end of March 1973. An immediate meeting of Corps' personnel and officials of the company revealed that the property had been sold to Creative Development Company, a real estate

investment and development corporation located in Boston, Massachusetts. On 31 January 1973, a meeting was held with Mr. John H. Finley, III, representative of Creative Development Company. Mr. Finley stated that the property would be released on a rental and lease basis with expectations of providing employment for at least as many people (420) as the Roxbury Carpet Co. and possibly more. This information, in addition to the fact that the Roxbury Carpet Co. buildings consist of prime industrial property in an excellent and favorable location, was given consideration relative to the Phase I General Design Memorandum.

Since an evaluation of losses under existing changing conditions cannot be made at this time, recent benefits derived including growth projections were used in the present evaluation attributable to the Roxbury Carpet Company. A reanalysis of losses and damages will be made during the preparation of the Phase II - Project Design, General Design Memorandum. At that time a better definition of development details may be available.

b. Industrial Area. - The village of Saxonville is currently in a transition stage both physically and economically. Recently, Roxbury Carpet Company, the largest employer in the community, was operating at a lower level of production than at the time of the project document due to reduced demand brought about by the current depressed status of the housing market. Employment was thirty (30) percent below the employment in 1965 (the time of project document). However, this deterrent on the economy in the area is expected to be only temporary in nature and, as the demands of an expanding economy increase, housing demand will increase and with it, the growing market for industrial products.

c. Urban Renewal Area. - The town of Framingham is proposing an urban renewal project for the principal purpose of providing low and moderate income housing. The site for the Urban Renewal Plan is located in the tract of land between Concord Street and the Sudbury River and extends north from the Concord Street bridge to beyond Chestnut Street. A portion of the renewal area is in the flood plain, and housing and urban development funds for the renewal project are contingent on flood damage prevention measures, either by the Corps' local protection project or by filling the development area to a level above that of the record flood of 1955. The cost of such a fill, even if it were practicable would be about \$2,000 annually amortized over the life of the project; physically it is not feasible because the existing grade of Concord Street cannot be changed due to the level of abutting properties.

The Urban Renewal Plan calls for the razing of most of the existing structures in the southern part of the renewal area; some razing and some rehabilitation of structures in the northern part of the project area; modification and additions to the present utility systems; and minor modifications to the area's roads and streets. It is then proposed to build in the razed areas with the emphasis on housing for low and moderate income families although some ancillary commercial development will be permitted.

Even with the industrial plant across Concord Street as a neighbor, the urban renewal area has unique advantages as a site for low and moderate income housing in Framingham. Arborous planting along Concord Street can screen the plant to some extent; the normally placid Sudbury River bounds the southern and eastern sides of the area giving a pleasing vista and some seclusion. The seclusion is enhanced by the fact that Concord Street is not a heavily traveled way except at the times the work force reports to Roxbury Carpet Company in the morning and leaves in the afternoon. Most normal community amenities such as shopping, banking, churches, and personal services are within easy walking distance of the proposed housing area.

The factors which make the Saxonville site a desirable one for the Urban Renewal Plan cannot be duplicated at any other Framingham location. Demand for land in Framingham is very high because of an expanding population, and the town's location. The density of people per square mile in the town has almost tripled in 30 years growing from 970 in 1940 to 2677 in the 1970 Census. With a population which is currently estimated to be 70,000 (1972) the town has recently acted to curb the building of apartment housing to ease the demand on local government both in services and utilities.

Located on two main east-west limited access highways, Interstate Route I-90 (the Massachusetts Turnpike) and Mass. Route 9 (the Worcester Turnpike), and lying midway between two circumferential expressways, Interstate Route I-495 and Mass. Route 128, the community is a magnet for commercial and industrial interests dependent on a good highway network for product distribution.

The effect of these demand factors, population growth and locational advantages for commerce is to make the cost of land suitable for development in Framingham comparable to land costs in the Greater Boston urban ring surrounding the central city. To achieve the conditions which will be attained by the Urban Renewal Project prior to housing construction i. e. land clearance and site preparation, utilities

and the community amenities already present which make the Renewal site so desirable would cost as much if not more in any other location in Framingham than the estimated construction cost of the Urban Renewal Project of \$1.8 million.

d. Right Bank Area. - Most of the land which is suitable for development on the right bank is being put to some use although not necessarily the best and highest use for land in this urban location. However, present usage will preclude future development on the right bank for the foreseeable future.

49. ANNUAL LOSSES. -

a. Current Conditions. - Recurring losses at various stages of flooding were combined with stage-frequency data to derive damage-frequency curves as a measure of annual losses. Current annual losses in the Saxonville area amount to \$177,000, \$168,000 on the left bank, and \$9,000 on the right bank.

b. Future Conditions. -

(1) Industrial Area - By the time the Saxonville local protection project is completed, the demand for industrial products will be such that the flood loss potential will have been increased by 7.5 percent. In addition to the increased payroll loss potential there will be an increase in the value and, therefore, the loss potential of the production facilities and contents of the industrial plant over time as a competitive market place forces a constant up-grading to keep the plant's share of the market..

In terms of constant dollars, the physical loss potential of the plant has increased at a rate of over 6-percent annually since 1963. This increase represents some increase in production equipment, a product change - the production of thread for other plants of the company, and a change in stock and content value connected with the product change. As noted above, the forces of market competition will mean an increase over time but a realistic value would not exceed 1.5 percent annually. Considering the plant's physical age and the vagaries of the market place, it is reasonable to project an increase of 25 percent over the next 20 years and then a leveling off. Discounted at 3.25 percent, the average annual equivalent of the increase loss potential amounts to 18.5 percent.

(2) Urban Renewal Area - Annual losses under current conditions in the area proposed for urban renewal amount to \$9,000 to property with an estimated value of \$400,000 (structures only) which is to be cleared under the renewal plan. New facilities to be installed under the renewal project would have losses at least equal to present losses if the local protection project is not provided and if the current intensity of land use were to be followed. Actually, the urban renewal plan calls for a different type of land use, medium income housing, which by its nature is a more intensive user of the land. It is estimated that future annual losses in the renewal area will be double the current value. As the urban renewal project is conditioned on the flood control project and is planned for simultaneous construction, discounting for time for development is not necessary.

50. TANGIBLE FLOOD CONTROL BENEFITS. - Flood damage prevention benefits were derived as the difference between average annual losses to be expected in Saxonville over time without flood protection and the annual losses remaining after construction of the recommended project. Benefits so derived amount to \$206,000 consisting of \$154,000 to present development in the flood plain and \$52,000 additional benefits due to projected changes in the area.

51. INTANGIBLE BENEFITS. - The Urban Renewal Project will improve the physical and social environment not only of the project site but of the entire Saxonville section of Framingham. The substitution of new apartment buildings for the deteriorating dwellings and commercial facilities currently on the site will not only enhance the immediate site environs it will also enhance the value of the adjacent properties and the more remote properties which lie within view of the site. The project will also help toward achieving the Congressional goal spelled out in Section 2 of P. L. 90-448, The Housing and Urban Development Act of 1968, of a decent home and a suitable living environment for every American family.

Approximately half of the Renewal site would be subject to flooding by the SPF and it is in this portion of the site that the major renewal work is to be carried out. Construction of the local protection project will make the utilization of the area for housing possible and therefore make the entire Urban Renewal Project feasible. The Corps' project should be credited with large social and environmental effects. Although it would be extremely difficult to quantify such benefits, they are nevertheless real and add to the justification of the Corps' project.

52. REDEVELOPMENT BENEFITS. - Senate Document No. 97 of the 87th Congress directs that where areas have been designated as Redevelopment Areas by the Redevelopment Administration, the project

benefits shall be considered as increased by the value of the labor and other resources required for project construction and expected to be used in project operations, project maintenance and added area employment during the life of the project to the extent that such labor and resources would - in the absence of the project - be unutilized or underutilized.

The Providence-Pawtucket area has been designated as a Title IV Redevelopment Area under P. L. 89-136 by the Economic Development Administration of the U. S. Department of Commerce. The northern tier of towns in the Providence-Pawtucket Area includes Franklin and Bellingham, Massachusetts. These towns are within easy commuting distance of Framingham (15 miles) and unemployed workers could be expected to commute to Saxonville to work on the project.

The records of this office indicate that on the average civil works project the labor cost approximates 27 percent of total construction. The construction cost of the Saxonville project is currently estimated at \$2,570,000. The estimated labor component of 27 percent amounts to \$694,000.

It is regular practice for a contractor to bring a skeleton crew of his own men on to a job and fill the rest of his requirements from the local labor pool. It is estimated that 75 percent of the laborers will be locally hired for this project. While not all of the labor put to work will come from the rolls of the unemployed, the jobs that they leave will be filled by people from the unemployed or under-employed rolls so that the entire 75 percent is used. It is estimated that the work will take less than two years to complete with the bulk of the work being accomplished in the first year. With interest at 3-1/4 percent the derivation of the annual redevelopment benefit is as follows:

$\$694,000 \times .75 = \$520,000$  locally hired labor wages

$\$520,000 \times .033883$  (Capital Recovery Factor 3-1/4%, 100-yr. life)

$= \$17,619$

called \$18,000 annual redevelopment benefit

No claim is made for labor put to work in maintenance and operation of the project after construction; the need is small and the work will be handled by the regular public works forces of the community.

53. ECONOMIC ANALYSIS. - A summary of the annual costs, annual benefits and the ratio of benefits-to-costs for the recommended plan of

improvement for Saxonville is shown in Table 4.

TABLE 4  
SUMMARY OF COSTS AND BENEFITS

<u>First Costs</u>		<u>Recommended Project Plan</u>
Federal	\$	3,210,000
Non-Federal		<u>390,000</u>
Total First Costs	\$	3,600,000
<u>Annual Costs</u>		
Federal	\$	109,000
Non-Federal		<u>21,000</u>
Total Annual Costs	\$	130,000
<u>Annual Benefits</u>	\$	224,000
<u>Benefit-Cost Ratio</u>		1.7 to 1.0

#### O. LOCAL COOPERATION

54. GENERAL. - In accordance with Section 3 of the 1936 Flood Control Act, as amended, local interests will be required to provide the items of local cooperation as outlined in the Project Document and included in Paragraph 4 of this report. One additional requirement of local cooperation and participation responding to changes since project authorization is that local interests comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, P. L. 91-646.

55. LOCAL ASSURANCES. - A request for formal assurances from the Board of Selectmen, Framingham, Massachusetts will be made after approval of the Phase II-General Design Memorandum. Construction of the Saxonville Local Protection Project will require that local interests furnish assurances imposed by the authorizing document and the current additional requirements satisfactory to the Secretary of the Army that they will:

- a. Provide without cost to the United States, all lands, easements, and rights-of-way necessary for the construction of the project, including lands for spoil disposal areas, pumping station, and drainage systems;
- b. Hold and save the United States free from damages due to the construction works;
- c. Maintain and operate all the works after completion in accordance with regulations prescribed by the Secretary of the Army;
- d. Provide without cost to the United States all alterations and replacements of existing utilities, including bridges, highways, sewers, and railroad modifications and relocations other than bridges and bridge approaches, which may be required for the construction of the project;
- e. Prescribe and enforce regulations to prevent encroachment on both the improved and unimproved channel through Saxonville;
- f. Prohibit encroachment on ponding areas and, if the capacity of these areas is impaired, promptly provide substitute ponding capacity or equivalent pumping capacity without cost to the United States; and
- g. Comply with the requirements specified in Sections 210 and 305 of Public Law 91-646, 91st Congress, approved 2 January 1971 entitled, "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970".

56. VIEWS OF LOCAL INTERESTS. - Meetings have been held with local officials to exchange ideas and keep them informed of the flood control features of the project and the total estimated project costs and non-Federal costs. The general plan, project features and project costs were outlined and discussed at the public meeting held on 30 November 1972 in Framingham, Massachusetts.

Officials of the town of Framingham and the Massachusetts Department of Natural Resources have expressed their intentions and willingness to cooperate and participate in the local flood protection works by their letters of concurrence included in Appendix A as Exhibits 2, 4 and 14. The strong interest indicated by local and civic groups reinforces the intent of local officials to fulfill the requirements of local participation.

57. NON-FEDERAL COSTS. - Non-Federal estimated first costs amount to \$390,000 including \$375,000 for lands and damages and \$15,000 for utility relocations. The non-Federal investment cost is the same as the non-Federal first cost since no interest charge accrues during the estimated construction period of two years. Upon completion of the project, the town of Framingham will operate and maintain the flood control works and will replace equipment having a life of less than 100 years as required at an annual cost currently estimated at \$7,800.

The Framingham Board of Selectmen located at Memorial Building, Framingham, Massachusetts, 01701, is responsible for fulfillment of the costs and requirements of local cooperation and participation acting in the name and on behalf of the town of Framingham. Mr. John F. Del Prete, present Chairman of the Board of Selectmen, has indicated the town's desire for construction of the flood control project and has noted the town's intentions of providing the necessary funds. Local request for funds, however, would have to be included in a Town Warrant requiring approval through Town Meeting action.

#### P. DEPARTURES FROM PROJECT DOCUMENT PLAN

58. DEPARTURES. - Since authorization of the Saxonville project in 1966, changes have occurred in site conditions and design criteria that require modifications to project features and costs. Changes from the project document plan have been included and shown on Plate 2-3. The changes consist of modifying the concrete floodwall and dike at Saxonville Pond upstream of Central Street, constructing a section of concrete floodwall in lieu of earth dike west of Concord Street, and increasing the height of project features due to the revised Standard Project Flood elevation.

#### 59. REASONS FOR DEPARTURES. -

a. Wall and Dike Modifications. - The authorized plan includes a section of concrete floodwall and earth dike just above Central Street to prevent overflow of floodwaters from Saxonville Pond into the protected area. The Central Street bridge at this location was recently rebuilt and widened by the Massachusetts Department of Public Works. This construction required major alteration to an existing water chamber used by the Roxbury Carpet Company for intake of process water for industrial use and for fire fighting. Recent studies and investigations determined that a concrete floodwall should be constructed just upstream of the reconstructed intake chamber. Since construction of this new

floodwall requires the removal of part of the existing intake chamber, it is necessary to provide a gate for flood control purposes in the new floodwall. This change increases the estimated project construction cost by about \$10,000.

b. Floodwall in Lieu of Dike. - A formerly low cost residential property at the westerly side of Concord Street bordering on the Sudbury River has been converted into a commercial establishment and now used as a thriving tavern business. During preauthorization studies, it was determined to be less expensive to acquire the then residential property and construct an earth dike along the river on this land in lieu of constructing a concrete floodwall. Current studies and recent property appraisals, however, reveal that estimated costs will be \$20,000 less to construct a concrete floodwall in lieu of an earth dike that would require the acquisition of the business enterprise.

c. Increased Height of Protection. - The current project plan is designed for a Standard Project Flood of 10,000 cfs for the reach of the Sudbury River from Saxonville Pond downstream to the confluence with Cochituate Brook. Below Cochituate Brook, the SPF is approximately 11,900 cfs. In post authorization hydrologic analysis, a Standard Project Flood was developed assuming all reservoirs upstream were initially filled to spillway crest. This resulted in a Standard Project Flood above the authorized level by up to 2 feet in the reach above Concord Street and up to 3.5 feet in the reach below Concord Street. The project cost for modifying and increasing the height of protection is estimated at \$250,000. A detailed discussion of post authorization hydrologic studies is presented in Design Memorandum No. 1, "Hydrologic Analysis".

#### Q. STATEMENT OF FINDINGS

I have reviewed and evaluated, in light of the overall public interest, the documents concerning the proposed action, as well as the stated views of other interested agencies and the concerned public, relative to the various practicable alternatives in accomplishing local flood protection along the Sudbury River in the village of Saxonville, town of Framingham, Massachusetts.

The possible consequences of these alternatives have been studied according to environmental, social well-being, and economic effects, including regional and national development and engineering feasibility.

In evaluation, the following points were considered pertinent:

a. Environmental Considerations. - From an environmental standpoint, I have selected the optimum plan which will afford more enhancement than adverse effects. The recommended project will have beneficial effects on flood control, water quality, pollution, aesthetics, and urban development. Only minimal vestiges of a natural environment remain and no possibility exists for a reversal in the urbanization process and restoration of the natural environment. The project will improve the water quality of the Sudbury River by reducing material added to the stream by erosion and will also have beneficial effects by making more land area available for industrial, commercial or residential use. Overall, the project would minimize the danger of flooding in the low-lying area along the left bank of the Sudbury River in Saxonville, along with the destruction and hazards associated with flooding; resulting in an upgrading of the urban environment and aesthetics. The project offers no opportunity to benefit fish and wildlife resources, nor will it have any adverse effects upon these resources. The aesthetics of the area will be enhanced not only by the improved water quality but also by displacing an unsightly and undesirable existing physical condition with neatness and control and order offered by the project. No adverse environmental effects are known or anticipated if the project is implemented. However, some increased siltation and temporary turbidity is expected during construction. Measures will be taken to hold these effects to a minimum. In addition, some vegetation will be destroyed in the area of the channel improvement and this condition will prevail until revegetation is accomplished.

b. Social Well-Being Considerations. - I find that the overriding social well-being consideration in the Saxonville area is the reduction of the flood hazard that has caused tremendous damages and human suffering and has restricted normal development over the past four decades. The recommended project will provide a high degree of protection resulting in greater community cohesion and ensuring availability of public facilities during times of flooding. Construction of the flood control improvements will make possible higher utilization of the area for the planned urban renewal project which will improve the physical and social environment of not only the project site, but the entire Saxonville section of Framingham. With the exception of a wood

frame warehouse, there will be no displacement of residential or commercial properties required for construction of the project.

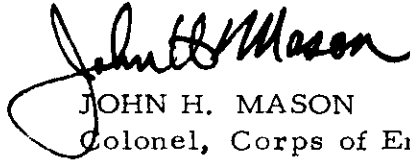
c. Engineering Considerations. - From an engineering standpoint, I have selected the project that would provide the highest degree of flood protection feasible because of the highly urbanized nature of the project area. Studies have been made of increasing or decreasing the height of protection and the scope of the project for maximizing flood control excess benefits and for determining the most economical and feasible plan of improvements. I have selected the plan that provides protection against the standard project flood as well as having the least social, economical and environmental impact on the project area. The recommended project was found to be the most practical method of meeting the flood control needs in the Saxonville area. Other considered project alternatives including non-structural measures did not meet the criteria and requirements for various economic, social and environmental reasons.

d. Economic Considerations. - From an economic standpoint, I have selected the economically optimum plan by providing a high degree of flood protection which will be conducive to the enhancement of social well-being and economic growth. The recommended project will have a net effect of increasing employment, tax revenues, and property values and will preserve and stimulate growth in the protected area.

e. Other Public Interest Considerations. - I find that the desires of the town of Framingham and the Framingham Redevelopment Authority for flood protection of the Saxonville area, are feasible and economically justified based on a combination of tangible and intangible benefits. The flood control improvement will enhance the social well-being and economic and environmental aspects in the Framingham area. I concur with the requests and desires of local interests and Massachusetts state officials indicating strong support for the flood control project and early implementation of the construction works.

I find that the proposed action, as developed in the Plan Formulation and Recommendation, is based on thorough analysis and evaluation of practicable alternative courses of action for achieving the stated objectives; that wherever adverse effects are found to be involved they cannot be avoided by following reasonable alternative courses of action which would achieve the Congressionally specified purposes; that where the proposed action has an adverse effect, this effect is either ameliorated

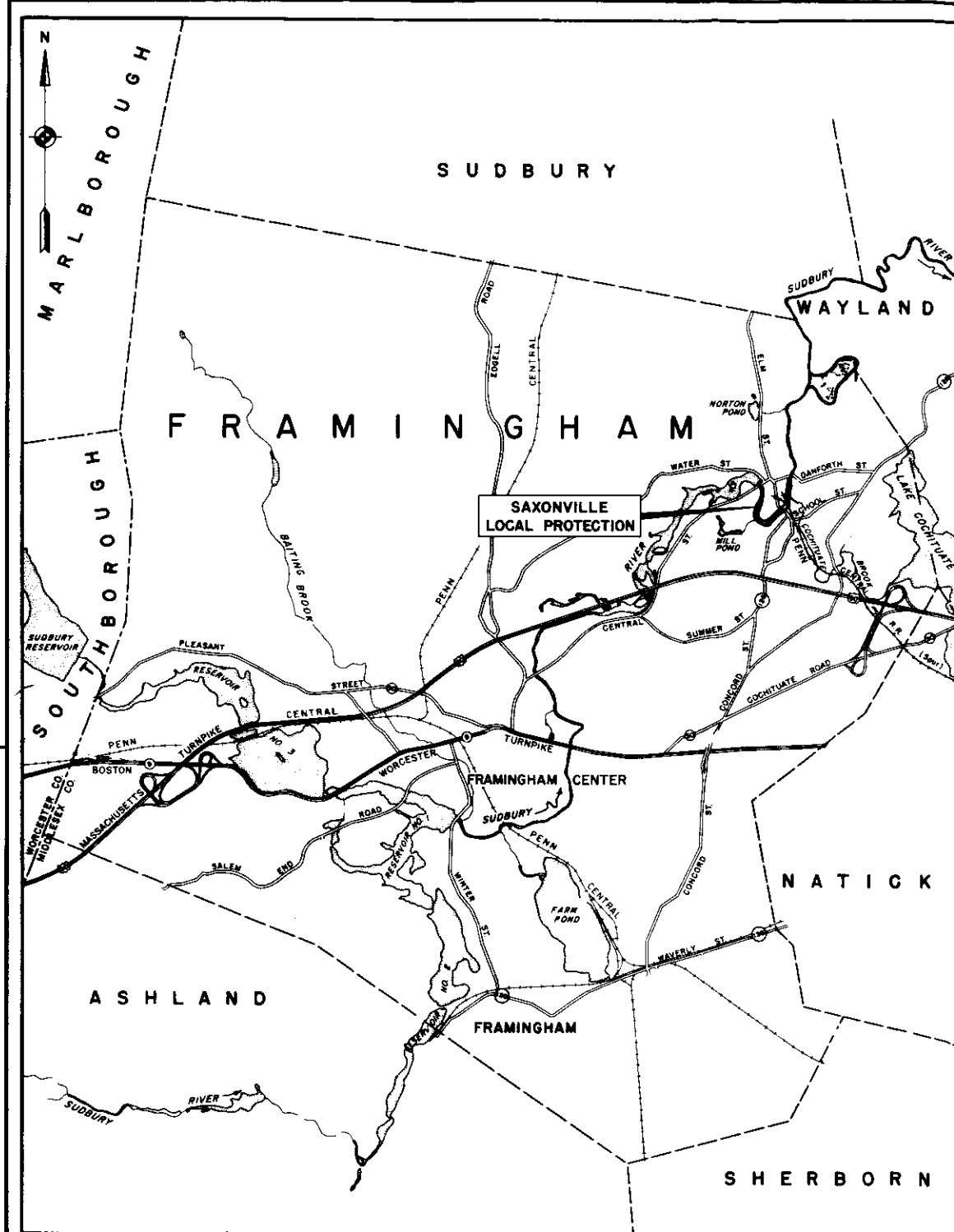
or substantially outweighed by other considerations of national policy; that the recommended action is consonant with national policy, statutes, and administrative directives; and that on balance the total public interest should best be served by the implementation of the recommendation.

A handwritten signature in black ink, appearing to read "John H. Mason". The signature is fluid and cursive, with the first name "John" and last name "Mason" clearly distinguishable.

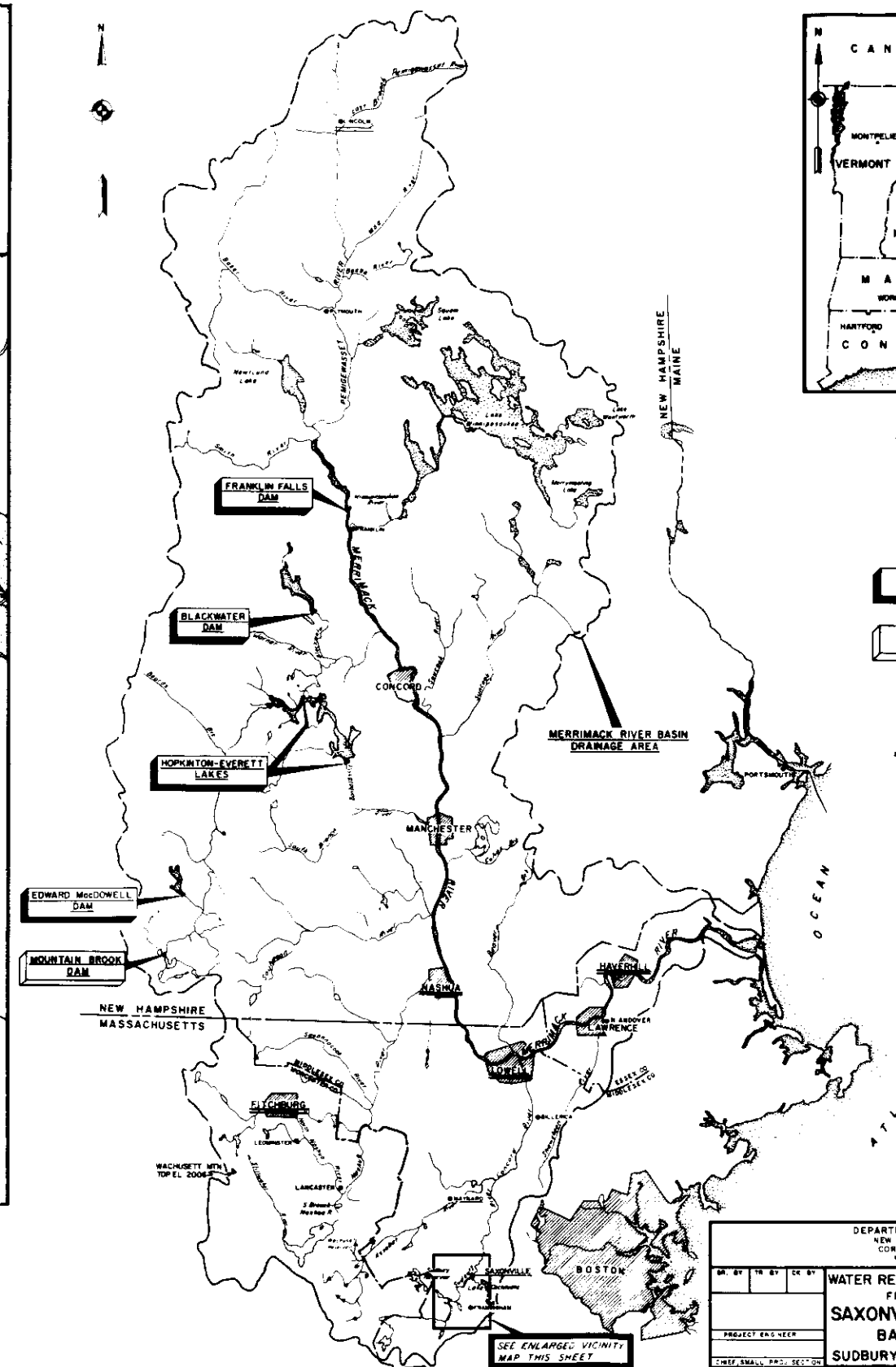
JOHN H. MASON  
Colonel, Corps of Engineers  
Division Engineer

#### R. RECOMMENDATIONS

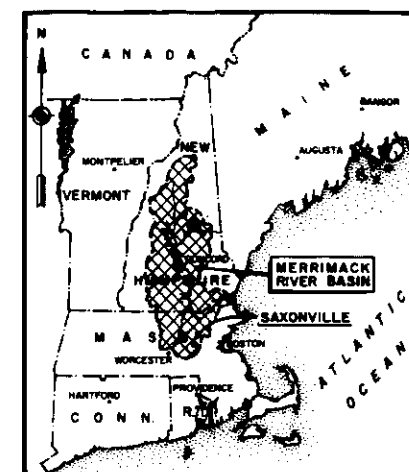
60. TREATMENT RECOMMENDED. - It is recommended that the project plan consisting of dikes, floodwalls, a pumping station, highway and railroad gate closures, channel improvement and other appurtenant works, submitted in this memorandum, be approved as the basis for preparation of the Phase II - General Design Memorandum for the Saxonville Local Protection Project.



VICINITY MAP

SCALE IN FEET  
0 1000 2000 3000

BASIN MAP

SCALE IN MILES  
0 25 50 75 100

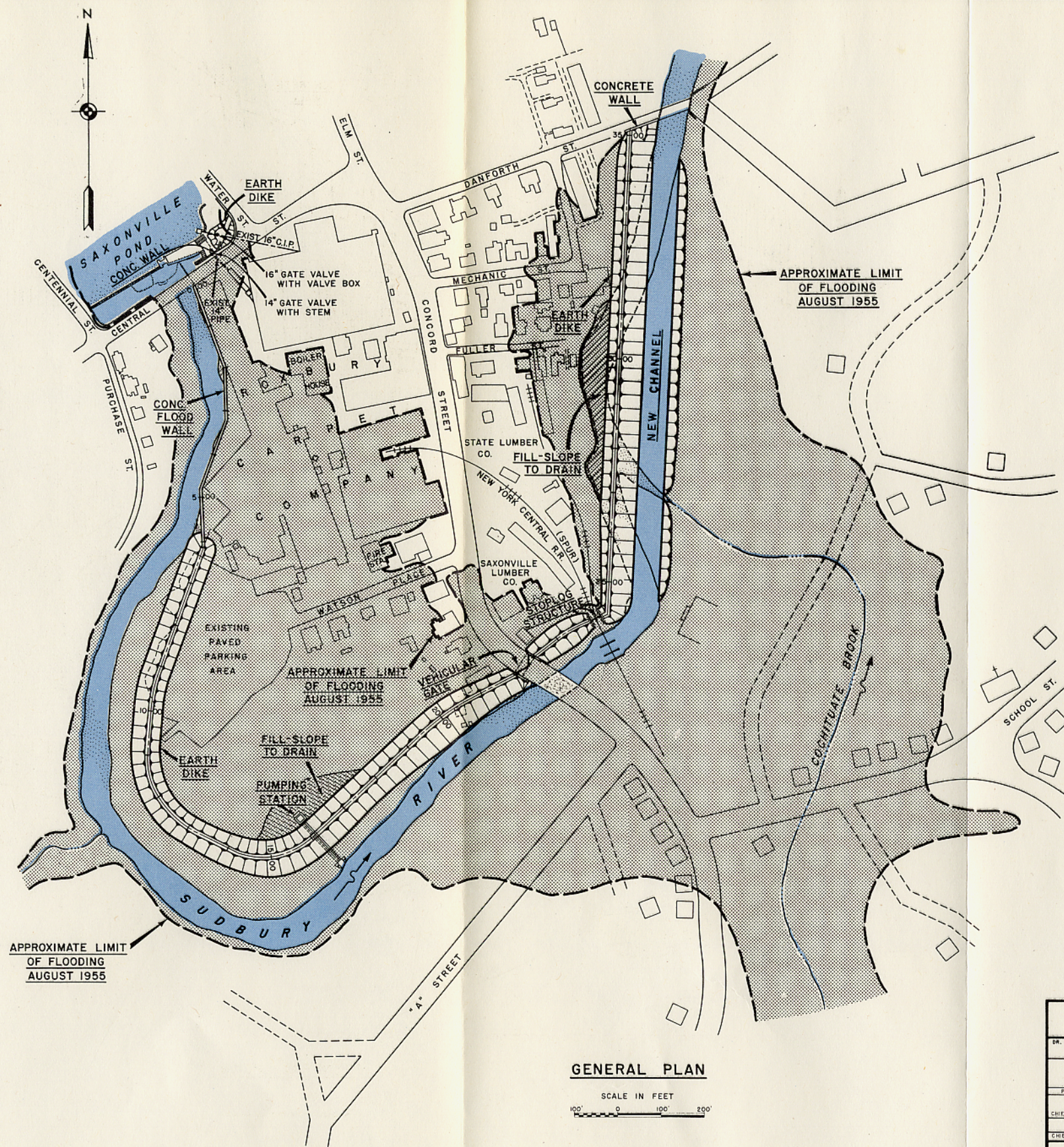
LOCATION MAP

SCALE IN MILES  
0 25 50 75 100

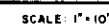
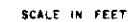
## LEGEND

- Flood Control Dam & Reservoir Completed
- Flood Control Dam & Reservoir Authorized But Inactive
- Floodwater Retarding Structures Proposed by Soil Conservation Service
- Local Protection Project Completed

DEPARTMENT OF THE ARMY NEW ENGLAND DIVISION CORPS OF ENGINEERS WALTHAM, MASS.			
WATER RESOURCES DEVELOPMENT PROJECT FRAMINGHAM, MASSACHUSETTS			
SAXONVILLE LOCAL PROTECTION BASIN AND VICINITY MAPS			
SUDBURY RIVER		MASSACHUSETTS	
DATE		MARCH 1973	
PROJECT ENGINEER		CHIEF ENGINEERING DIV.	
CHIEF, SMALL PROJ. SECT.		SCALE AS SHOWN	
CHIEF PLANN. & DES. BRANCH		DRAWING NUMBER	
SHEET			

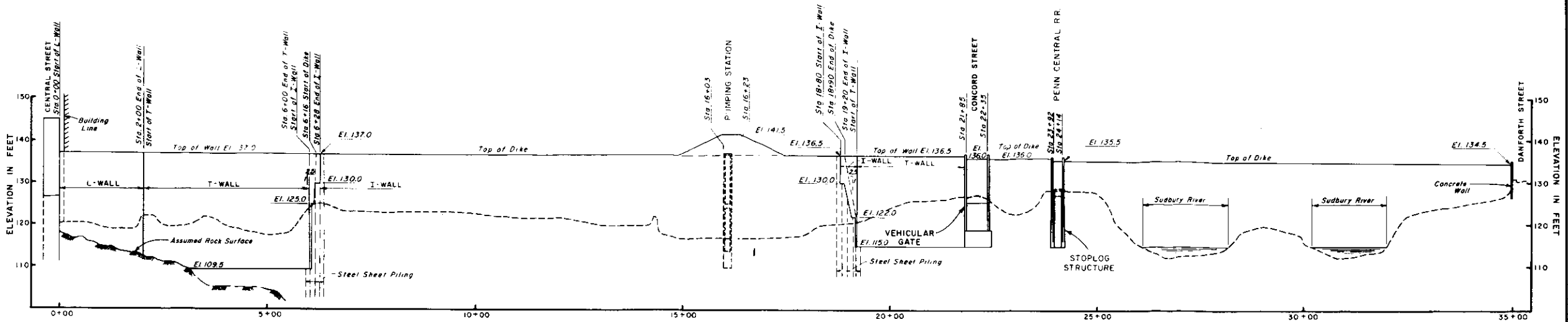


DEPARTMENT OF THE ARMY NEW ENGLAND DIVISION CORPS OF ENGINEERS WALTHAM, MASS.			
DR. BY	TR. BY	CK. BY	WATER RESOURCES DEVELOPMENT PROJECT FRAMINGHAM, MASSACHUSETTS
PROJECT ENGINEER			<b>SAXONVILLE LOCAL PROTECTION</b>
CHIEF, SMALL PROJ. SECTION			<b>AUTHORIZED PLAN</b>
CHIEF, PLANN. & RPT'S BRANCH			<b>SUDBURY RIVER MASSACHUSETTS</b>
CHIEF ENGINEERING DIVISION			DATE MARCH 1973
SCALE: AS SHOWN			DRAWING NUMBER
SHEET			



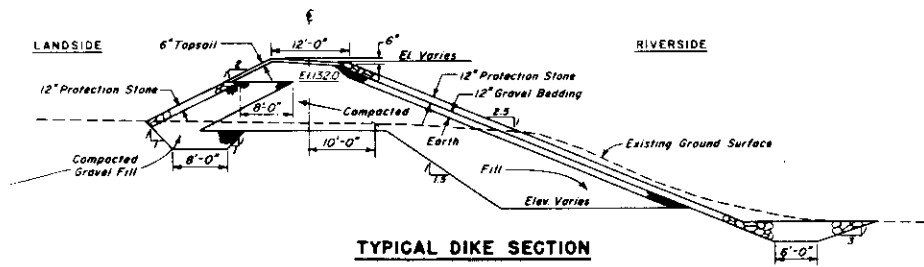
1. Topography shown is from survey by the Corps of Engineers with two-foot contour interval.  
2. Elevations are in feet and refer to mean sea level datum.

SCALE AS SHOWN

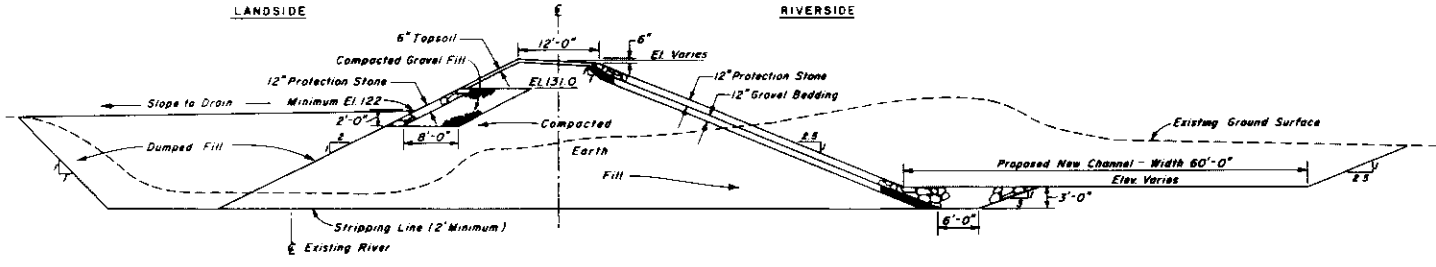


PROFILE ALONG WALL AND DIKE

SCALE: HORIZ. 1"=100'  
VERT. 1"=10'

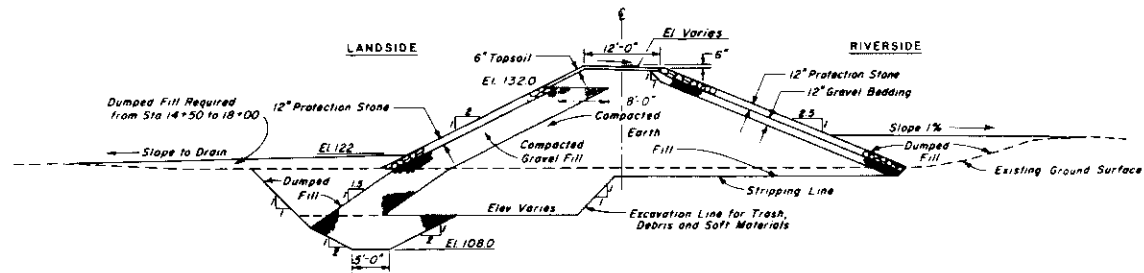


TYPICAL DIKE SECTION  
STA. 6+16 TO STA. 6+80



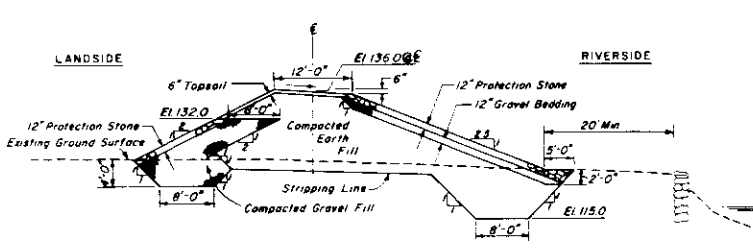
TYPICAL DIKE SECTION  
STA. 24+15 TO STA. 35+0

SCALE 1"=10'



TYPICAL DIKE SECTION  
STA. 6+80 TO STA. 18+90

SCALE 1"=10'



TYPICAL DIKE SECTION  
STA. 22+40 TO STA. 23+91

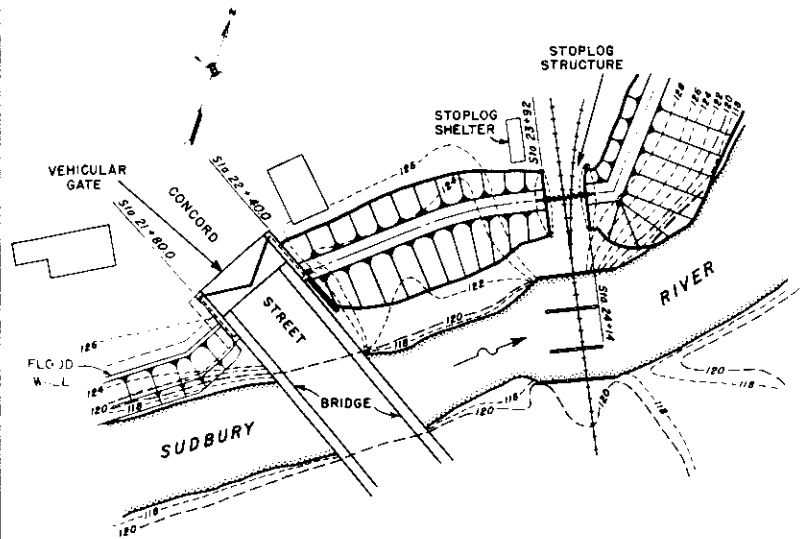
SCALE IN FEET

1"=10'-0" 0 10 20

NOTES:

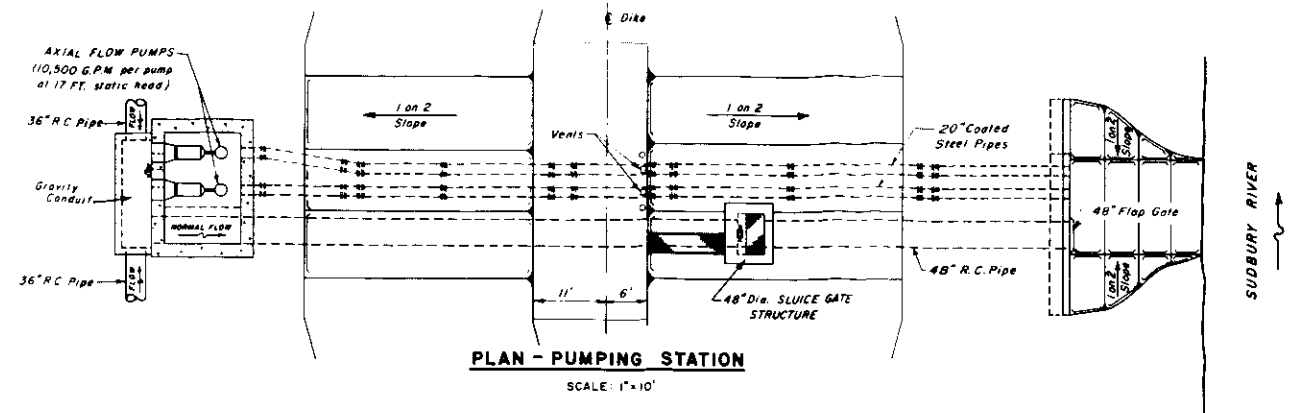
1. Elevations are in feet and refer to mean sea level datum

DEPARTMENT OF THE ARMY NEW ENGLAND DIVISION CORPS OF ENGINEERS WALTHAM, MASS.			
WATER RESOURCES DEVELOPMENT PROJECT FRAMINGHAM, MASSACHUSETTS			
SAXONVILLE LOCAL PROTECTION PROFILE AND SECTIONS			
PROJECT ENGINEER		SUDBURY RIVER MASSACHUSETTS	
CHIEF, SMALL PROJ. SECTION		DATE MARCH 1973	
CHIEF, PLANN. & RPT. BRANCH		CHIEF, ENGINEERING DIV.	
SCALE AS SHOWN		DRAWING NUMBER	
SHEET			



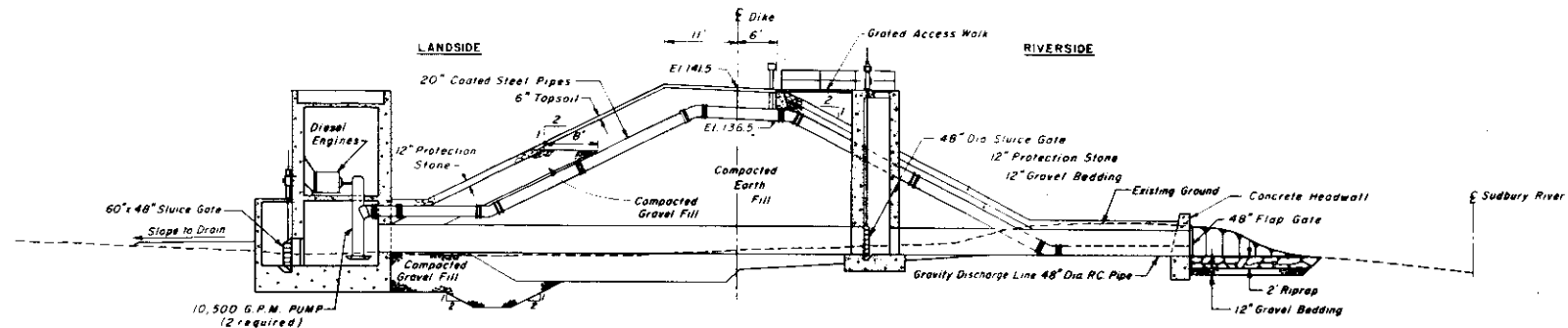
GENERAL PLAN - CLOSURE STRUCTURES

SCALE IN FEET  
1" = 40'-0"



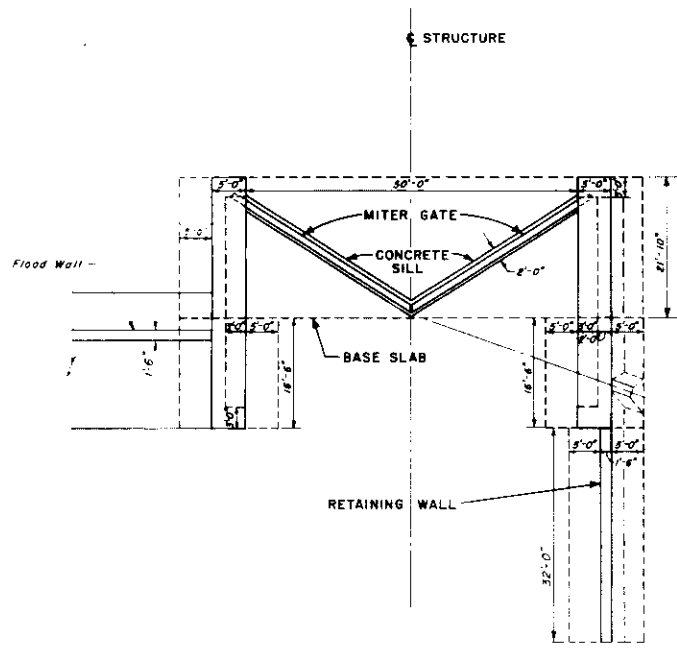
PLAN - PUMPING STATION

SCALE: 1"=10'



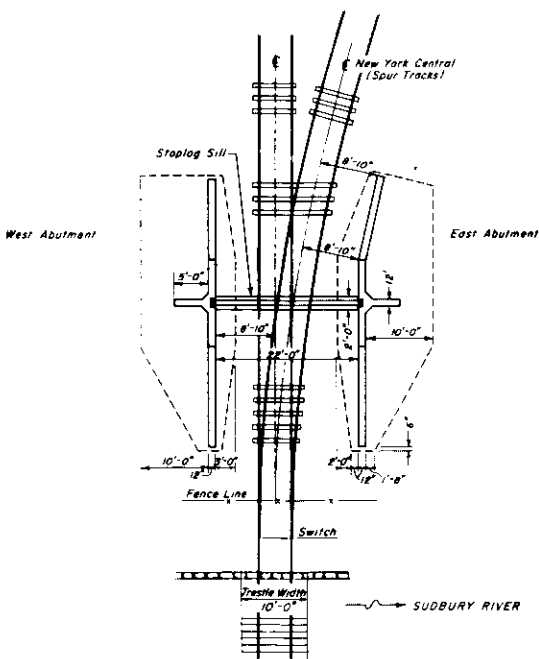
SECTION THRU PUMPING STATION AND DISCHARGE LINES

SCALE: 1"=10'



PLAN - CONCORD STREET VEHICULAR GATE

SCALE: 1"=10'



PLAN - STOPLOG STRUCTURE

SCALE IN FEET  
1" = 20'-0"

NOTES:  
1. Elevations are in feet and refer to mean sea level datum

DEPARTMENT OF THE ARMY NEW ENGLAND DIVISION CORPS OF ENGINEERS Framingham, Mass.			
WATER RESOURCES DEVELOPMENT PROJECT FRAMINGHAM, MASSACHUSETTS			
SAXONVILLE LOCAL PROTECTION SECTIONS AND DETAILS			
SUDBURY RIVER MASSACHUSETTS			
DATE MARCH 1973			
PROJECT ENGINEER		CHECK ENGINEER'S SIGNATURE	
CHECKED BY		SCALE AS SHOWN	
DRAWING NUMBER		SHEET	

APPENDIX A

LETTERS OF COMMENT AND CONCURRENCE

APPENDIX A

LETTERS OF COMMENT AND CONCURRENCE  
SAXONVILLE LOCAL PROTECTION  
SUDBURY RIVER, MERRIMACK RIVER BASIN  
FRAMINGHAM, MASSACHUSETTS

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12 Jan 1973	Framingham Board of Selectmen	2
24 Jul 1972	Framingham Redevelopment Authority	3
12 Jul 1972	Mass. Dept. of Natural Resources	4
28 Jun 1972	Mass. Water Resources Commission, Div. of Water Pollution Control	5
22 Jun 1972	Mass. State Department of Public Works	6
1 Sept 1972	Mass. State Reclamation Board	7
22 Aug 1972	Mass. Div. of Fisheries and Game	8
19 Jul 1972	Massachusetts Historical Commission	9
8 Aug 1972	U. S. Dept. of Interior, Fish and Wild- life Service	10
14 Jun 1972	U. S. Dept. of Agriculture, Soil Con- servation Service	11
28 Jun 1972	U. S. Dept. of the Interior, Bureau of Outdoor Recreation	12
24 Apr 1972	U. S. Dept. of Housing and Urban De- velopment	13
30 May 1969	Framingham Board of Selectmen	14



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION I Room 2211-B  
JOHN F. KENNEDY FEDERAL BUILDING - ROOM 2203, BOSTON, MASSACHUSETTS 02203

April 3, 1973

Mr. John W. Leslie, Chief  
Engineering Division  
Department of the Army  
New England Division, Corps of Engineers  
424 Trapelo Road  
Waltham, Massachusetts 02154

Dear Mr. Leslie:

We have reviewed Design Memorandum No. 2 for the Saxonville Local Protection Project. From the information presented in the statement, we do not see any significant adverse environmental impacts of this project. However, we feel that the long-range effectiveness of this project may depend upon the protection of natural water storage areas upstream of this project. Development of flood plain areas and filling of swamplands would result in a reduction in flood water storage areas which could negate the benefits of this project. In addition, the reduction of storage areas could aggravate the low flow problem in the Sudbury River during other portions of the year. Great Cedar Swamp in Westboro is one such natural storage area which is vulnerable to development and thereby a loss of storage capacity. We understand that the Soil Conservation Service is studying this problem and have compiled their results in the "Upper Sudbury Flood Hazard Analysis". Because of the dependency of the Saxonville Local Protection Project on the treatment of headwater retention areas, this project (Saxonville Local Protection) should be analyzed in relation to the SCS study.

We appreciate the opportunity to comment on this statement and hope our comments are valuable in formulating a sound water resources development project.

Sincerely yours,

A handwritten signature in cursive script that reads "Wallace E. Stickney".

Wallace E. Stickney, P.E.  
Chief  
Environmental Impact Branch

EXHIBIT 1



# Town of Framingham

Massachusetts

Selectmen's Office

Telephone 872-4806

JOHN F. DELPRETE, Chairman  
PETER W. ABLONDI, Clerk  
JOHN F. KING

RALPH T. NOONAN  
~~JENNIFER L. GIBSON~~  
Exec. Secretary-Coordinator

January 12, 1973

John Wm. Leslie  
Chief, Engineering Division  
Department of the Army  
New England Division, Corps of Engineers  
424 Trapelo Road  
Waltham, Massachusetts 02154

Re: Saxonville Local Protection Project

Dear Mr. Leslie:

You are advised that the Town of Framingham is anticipating the implementation of the above-referenced project without further undue delay. The Town is willing to participate and cooperate subject to the necessary appropriations which will have to be made by Town Meeting action.

Very truly yours,

A handwritten signature in cursive script that reads "John F. DelPrete".

John F. DelPrete, Chairman  
Board of Selectmen

JFD:JLG:es

EXHIBIT 2



## FRAMINGHAM REDEVELOPMENT AUTHORITY

226 Union Avenue

Framingham, Massachusetts 01701

P. O. Box 96

Telephone: 617 872-2539

ANTHONY R. DeANGELIS, Chairman  
HORACE W. HILL, Vice Chairman  
BARRY J. WALKER, Treasurer  
JOHN B. FITZMAURICE, Assistant Treasurer  
HENRY J. McKEOWN

DAVID F. HOOVER  
Executive Director

July 24, 1972

John Wm. Leslie RE: NEDED-R  
Chief, Engineering Division  
Department of the Army  
New England Division, Corps of Engineers  
424 Trapelo Road  
Waltham, Massachusetts 02154

Dear Mr. Leslie:

Thank you for your letter advising us of the current status of the proposed Saxonville Local Protection Project. The proposed flood control as shown on the maps which you enclosed conforms to our urban renewal plan. Our only concern is that the dike protecting the Urban Renewal Area be constructed as soon as possible so that we can complete our proposed housing.

We note the provisions in you plan for the railroad spur passing over the Sudbury River, through the dike and the project area. The approved Urban Renewal Plan calls for the removal of that railroad spur and thus it will be unnecessary to provide for its passage through the dike.

We are grateful for the cooperation extended to us.

Yours truly,

*Anthony R. DeAngelis*  
Anthony R. DeAngelis  
Chairman

cc: Board of Selectmen



FRANCIS W. SARGENT  
GOVERNOR

ARTHUR W. BROWNELL  
COMMISSIONER

*The Commonwealth of Massachusetts*  
*Department of Natural Resources*  
*Loeverett Saltonstall Building*  
*100 Cambridge Street, Boston 02202*

July 12, 1972

Mr. John Wm. Leslie  
Chief, Engineering Division  
Department of the Army  
New England Division, Corps of Engineers  
424 Trapelo Road  
Waltham, Massachusetts 02154

Dear Mr. Leslie:

The Department of Natural Resources endorses the Saxonville Local Protection project, contingent, of course, on local support.

We recommend that if multiple benefits can accrue from this project that they be given careful design consideration. We feel that this project may present an opportunity to demonstrate that a channel improvement project can result in esthetic enhancement rather than degradation.

We wish also to call to your attention our comments made previously pursuant to the draft environmental statement reviewed by this agency.

Very truly yours,

A handwritten signature in dark ink, appearing to read "Arthur W. Brownell", written in a cursive style.

Arthur W. Brownell  
Commissioner  
Department of Natural Resources

AWB/EHC/hp

cc: Charles H. W. Foster



OFFICE OF THE DIRECTOR  
DIVISION OF WATER  
POLLUTION CONTROL

*The Commonwealth of Massachusetts*  
*Water Resources Commission*  
*Leverett Saltonstall Building, Government Center*  
*100 Cambridge Street, Boston 02202*

June 28, 1972

Mr. John Wm. Leslie  
Chief, Engineering Division  
Department of the Army  
New England Division, Corps  
of Engineers  
424 Trapelo Road  
Waltham, Massachusetts 02154

Re: Framingham  
Saxonville Local  
Flood Protection  
Project

Dear Mr. Leslie:

The proposed flood control project in the Saxonville Section of Framingham planned by the Corps of Engineers will provide multiple benefits.

The Massachusetts Division of Water Pollution Control is particularly interested in the new sewage pumping station on Watson Place. This station is of primary importance in the clean-up effort on the Sudbury River. The protection of this station against flooding is of concern to this Division.

The construction by your agency will insure that the Watson Place sewage pumping station will not be by-passed due to flooding of the Sudbury River. The Division approves of this project and recommends that the work begin as soon as possible.

Very truly yours,

*Thomas C. McMahon*  
Thomas C. McMahon  
Director

TCM/ANC/bc



*The Commonwealth of Massachusetts*

*Department of Public Works*

*Office of the Commissioner*

*100 Nashua Street, Boston 02114*

June 22, 1972


John Wm. Leslie, Chief, Engineering Division  
Department of the Army  
New England Division, Corps of Engineers  
424 Trapelo Road  
Waltham, Massachusetts 02154

Dear Mr. Leslie:

Reference is made to your recent letter of June 7, 1972 regarding the proposed Saxonville Local Protection Project.

I have discussed the proposed project with Associate Commissioner Malcolm E. Graf of our Waterways Division and am very much in favor of the proposed improvements, and I concur as this will prevent major flood damage in future years.

Very truly yours,

  
BRUCE CAMPBELL  
COMMISSIONER



# *The Commonwealth of Massachusetts*

## *State Reclamation Board*

*Loverett Saltonstall Building, Government Center*

*100 Cambridge Street, Boston 02202*

EDWARD WRIGHT, CHAIRMAN  
HAROLD D. ROSE  
JOHN J. MCCOLGAN  
CHARLES J. CANNON, EXECUTIVE SECRETARY

September 1, 1972

Mr. John William Leslie  
Chief, Engineering Division  
Department of the Army  
New England Division, Corps of Engineers  
424 Trapelo Road  
Waltham, Massachusetts 02154

Dear Mr. Leslie:

Please refer to your letter to me of 7 June, 1972 on the Saxonville Flood control project and my acknowledgement of June 9, 1972. Enclosed is a copy of a letter of August 11, 1972 from Mr. Armstrong, Superintendent of our East Middlesex Mosquito Control Project. I am in agreement with Mr. Armstrong's comments.

Yours very truly,

A handwritten signature in dark ink, appearing to read "Edward Wright".

Edward Wright, Chairman  
State Reclamation Board

EW:MOF  
Enc.

EXHIBIT 7

PAGE 1 OF 2

THE COMMONWEALTH OF MASSACHUSETTS

STATE RECLAMATION BOARD

COMMISSIONERS

COMMISSIONERS

Joseph W. Kales  
Chairman — Belmont  
Raymond F. Wagner  
Secretary — Brookline  
J. L. Comeau — Arlington  
Richard K. Brown — Bedford  
Vincent Howard — Burlington  
Fred Smith — Cambridge  
John V. Sullivan — Framingham  
Albert L. Gray, Jr. — Lexington

Henry F. Regan — Maynard  
Herlan W. Kingsbury — Newton  
Marjorie A. C. Young — Sudbury  
Stanley T. Oley — Waltham  
Paul F. Murray — Watertown  
George G. Bogren — Wayland  
Alfred E. Spada — Wellesley  
John A. Naegels — Weston  
Robert L. Armstrong  
Superintendent

EAST MIDDLESEX MOSQUITO CONTROL PROJECT

11 Sun Street, Waltham, Mass. 02154

Phone: 899-5730

August 11, 1972

Dept. of Agriculture  
State Reclamation Board  
State Office Bldg.  
100 Cambridge St.  
Boston, Mass. 02202

Dear Mr. Wright:

The proposed flood control plan for Saxonville would seem to pose no additional mosquito problem in that area. It might improve the situation.

I would call attention to the shallow and partially clogged condition of the Sudbury River downstream from the Danforth Street bridge to beyond Stone Bridge.

Very truly yours

*R. L. Armstrong*

R. L. Armstrong

RLA/t

EXHIBIT 7

PAGE 2 OF 2



JAMES M. SHEPARD  
DIRECTOR

# *The Commonwealth of Massachusetts*

## *Division of Fisheries and Game*

*Leverett Saltonstall Building, Government Center*

*100 Cambridge Street, Boston 02202*

August 22, 1972

Division Engineer  
New England Division  
U.S. Army Corps of Engineers  
424 Trapelo Road  
Waltham, Massachusetts 02154

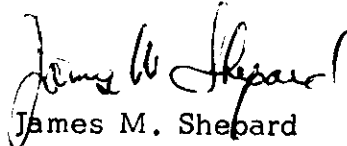
Dear Sir:

Reference is made to Mr. Leslie's letter of June 7, 1972 regarding the flood control local protection project on Sudbury River at Saxonville, Massachusetts.

Please be advised that this agency anticipates that there would be little or no significant adverse effects to our inland fish and wild-life resources.

We appreciate the opportunity to review and comment on this project proposal.

Sincerely yours

  
James M. Shepard  
DIRECTOR

JMS/AWN:cms  
cc: Division of Water Resources



*John F. N. Darrow*  
*Secretary of the Commonwealth*

*The Commonwealth of Massachusetts*  
*Office of the Secretary*

*State House, Boston 02133*  
Massachusetts Historical Commission  
3 Joy Street, Boston, Mass. 02108

July 19, 1972

Colonel John H. Mason  
Corps of Engineers  
Acting Division Engineer  
424 Trapelo Road  
Waltham, Mass. 02154

Re: NEDED-R, Saxonville Local Protection Project

Dear Colonel Mason:

There are no properties listed on the National Register which would be affected by this project. At the moment there are no properties in the area which are contemplated for nomination for the National Register.

We would like to draw your attention to the existence of two old stone bridges which originally spanned the Sudbury River north of the present project. Historical Research is continuing on both to determine the age and to document the significance. Bridges have been in these two sites since before 1795.

1. Stone's Bridge between Sudbury and Framingham (Saxonville), near Stone's Bridge Road.
2. Town or Russell's bridge, downstream from Route 27 between Wayland and Sudbury.

We presume that any change in the course of the River in the project area will not affect these structures.

Sincerely yours,

A handwritten signature in cursive script, reading "Anne R. Wardwell".

Anne R. Wardwell  
Survey Director  
Massachusetts Historical Commission

ARW/dl

EXHIBIT 9



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE  
BUREAU OF SPORT FISHERIES AND WILDLIFE  
U. S. POST OFFICE AND COURTHOUSE  
BOSTON, MASSACHUSETTS 02109

AUG 8 1972

Division Engineer  
New England Division  
U. S. Army Corps of Engineers  
424 Trapelo Road  
Waltham, Massachusetts 02154

Dear Sir:

Reference is made to Mr. Leslie's letter of June 7, 1972, requesting our comments on the plan for the flood control local protection project on Sudbury River at Saxonville, Middlesex County, Massachusetts.

Previous Bureau reports, dated May 22, 1962 and June 30, 1965, indicated that the project would not significantly affect fish and wildlife resources. Further, these reports indicated little opportunity existed for enhancement of these resources. Our present review and investigation, as the result of your request, has led to the same conclusions.

Thank you for the opportunity to update our comments and report.

Sincerely yours,

*Richard E. Griffith*  
Regional Director

EXHIBIT 10

UNITED STATES DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

---

29 Cottage Street, Amherst, Massachusetts 01002

June 14, 1972

Colonel Frank P. Bane, Division Engineer  
Department of the Army  
U.S. Army Engineer Division, New England  
Corps of Engineers  
Attention: John W. Leslie, Chief Engineering Division  
424 Trapelo Road  
Waltham, Massachusetts 02154

Dear Colonel Bane:

I have reviewed the Saxonville Local Protection Project as requested in your letter of June 7, 1972 and suggest the following:

Appropriate measures should be taken to control erosion and sedimentation during construction of the dikes and channel improvements. All disturbed soil areas should be promptly vegetated as construction is completed.

The opportunity to comment on this project is appreciated.

Sincerely,

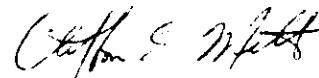
  
Dr. Benjamin Isgur *B.I.*  
State Conservationist

EXHIBIT 11





UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF OUTDOOR RECREATION  
FEDERAL BUILDING  
1421 CHERRY STREET  
PHILADELPHIA, PENNSYLVANIA 19102

IN REPLY REFER TO:

JUN 28 1972

Mr. John Wm. Leslie  
Chief, Engineering Division  
New England Division, Corps of Engineers  
424 Trapelo Road  
Waltham, MA 02154

Dear Mr. Leslie:

This is in response to your letter of June 7, 1972 regarding the proposed Saxonville Local Protection Project and we have no comment at this time. We have not completed detailed studies of this project and we have not conducted a field review of the project area. We appreciate the opportunity to review and comment on this project.

Sincerely yours,

Earl C. Nichols  
Assistant Regional Director, Planning  
and Land and Water Resource Studies

EXHIBIT 12



DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
AREA OFFICE  
BULLFINCH BUILDING, 15 NEW CHARDON STREET  
BOSTON, MASSACHUSETTS 02114

AREA OFFICES  
Boston, Massachusetts  
Hartford, Connecticut  
Manchester, New Hampshire

REGION I  
REGIONAL OFFICE  
BOSTON, MASSACHUSETTS

April 24, 1972

IN REPLY REFER TO:

1.1PTA

•  
Mr. John Wm. Leslie, Chief Engineering Division  
U.S. Army Engineer Division  
Corps of Engineers, New England Division  
424 Trapelo Road  
Waltham, Mass. 02154

Dear Mr. Leslie:

Reference is made to the U.S. Army Corps of Engineer's report on flood control plans for Saxonville entitled Interim Report on Review of Survey for Flood Control, Merrimack River Basin, Saxonville Local Protection, Sudbury River, Framingham, Massachusetts, 26 February 1965.

This office is involved in an urban renewal project in the Saxonville area that is dependent on the solution to the above noted flood problem.

A report on the status of the flood control project would be appreciated at your earliest convenience.

Please submit your reply to this office, attention Mr. Israel Davidson, Architectural/Engineering Section.

Sincerely,

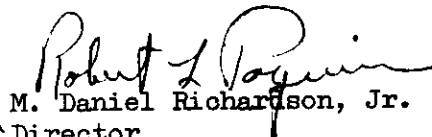
  
for M. Daniel Richardson, Jr.  
Director

EXHIBIT 13



# *The* TOWN OF FRAMINGHAM *Massachusetts*

## *Selectmen's Office*

PETER W. ABLONDI, *Chairman*  
JOHN F. KING, *Clerk*  
RICHARD W. COTE

ROBERT L. TURCOTTE  
*Exec. Secretary-Coordinator*

May 30, 1969

Department of the Army  
New England Division  
Corps of Engineers  
424 Trapelo Road  
Waltham, Massachusetts

Attention: Colonel F. R. Day

Re: NEDED-R, Saxonville Local Protection Project.

Dear Sir:

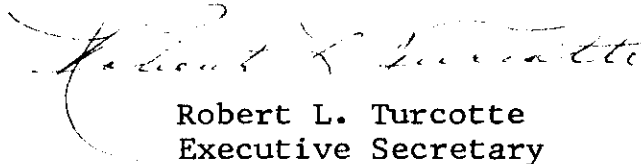
This will certify that, when the funds are allocated for construction of the above referenced project, the Town of Framingham, in accordance with applicable legislative authority governing the project, is willing and capable to meet the prescribed requirements of local cooperation and will agree to:

- a. Provide without cost to the United States, all lands, easements, and rights-of-way necessary for construction of the project, including lands for spoil disposal areas, pumping stations, and drainage systems;
- b. Hold and save the United States free from damages due to the construction works;
- c. Maintain and operate all the works after completion in accordance with regulations prescribed by the Secretary of the Army;
- d. Provide without cost to the United States all alterations and replacements of existing utilities, including bridges, highways, sewers, and railroad modifications and relocations other than bridges and bridge approaches, which may be required for construction of the project;

- e. Prescribe and enforce regulations to prevent encroachment on both the improved and unimproved channel through Saxonville, and
- f. Prohibit encroachment on ponding areas and, if the capacity of these areas is impaired, promptly provide substitute ponding capacity or equivalent pumping capacity without cost to the United States.

Very truly yours,

BOARD OF SELECTMEN



Robert L. Turcotte  
Executive Secretary

RLT:rc

APPENDIX B

PROJECT COST AND ESTIMATES

APPENDIX B  
PROJECT COST AND ESTIMATES  
SAXONVILLE LOCAL PROTECTION  
SUDBURY RIVER, MERRIMACK RIVER BASIN  
FRAMINGHAM, MASSACHUSETTS

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APPENDIX B  
PROJECT COST AND ESTIMATES  
SAXONVILLE LOCAL PROTECTION  
SUDBURY RIVER, MERRIMACK RIVER BASIN  
FRAMINGHAM, MASSACHUSETTS

1. CONSTRUCTION COSTS - Principal construction items were estimated on the basis of a preliminary design, the plans, sections and details of which are shown on plates following the text of the main report. A summary of the total cost of the project including Federal and non-Federal costs, estimated at \$3,600,000 is shown in Table B-1. A detailed breakdown is shown in Table B-3. The feature of lands and damages includes the additional costs for resettlement and acquisition as required under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, P.L. 91-646. The cost estimate also reflects an increase over the last reported estimate in the PB-3 of 1 July 1972, in which the project first cost was \$3,070,000.

2. UNIT PRICES - Unit prices at the January 1973 price level are based on averages for construction of comparable projects in the area.

3. CONTINGENCIES, ENGINEERING AND OVERHEAD - Construction and utility relocation cost estimates have been increased 20 percent to cover contingencies. Costs of engineering and design and supervision and administration, are estimated lump sums, based on experience, evaluation of the site and project, and comparison with similar projects in the area.

4. INVESTMENT COSTS - The Federal and non-Federal investment costs are the same as the construction costs since no interest charge accrues during the estimated construction period of two years.

5. ANNUAL CHARGES - A breakdown of annual charges is shown in Table B-2.

a) Interest and Amortization - The project is considered to have an economic life of 100 years. Interest is computed at 3.25 percent amortized over a 100-year period. The 3.25 percent

interest rate has been retained in accordance with the Water Resources Council regulation, which permitted retention of previous rate if satisfactory assurances of local cooperation were received prior to 31 December 1969. The Framingham Board of Selectmen furnished the required satisfactory assurances by letter dated 30 May 1969. This letter is included as Exhibit 14 in Appendix A.

b) Maintenance and Operation - This item is estimated on the basis of experience with other similar projects in the area. Included are costs for maintenance of the project structures and for operation of the project during periods of flood conditions. Also included are operational procedures of the sluice gates and pumps and other permanent operating equipment and gages. In determining the operation and maintenance annual charges, a 100-year economic life was used for the project. Costs are shown in Table B-2.

c) Major Replacements - An allowance, as shown in Table B-2, was made for the replacement of items deemed to have a usable life of less than the 100-year project life.

d) Loss of Productivity on Land - The tax increase from new development and upgraded property values within the protected area will more than offset loss in taxes from land taken for the project.

6. LANDS AND DAMAGES - This item reflects the cost to local interests for the purchase of land in fee and easement for constructing the project features, for temporary construction easements, relocation assistance to transfer of property, and severance damages. A detailed breakdown of lands and damages is given in Table B-3.

Part of the walls and dikes, and the channel realignment fall within the banks of the Sudbury River. The temporary easements include the Mill Pond and stream to be used for temporary diversion during construction. No value has been placed on 1.75 acres of river bottom, 5.14 acres of pond and stream and 0.14 acres of roads to be taken in either permanent or temporary easement for project features or construction. The vehicular gate will be constructed on Concord Street within the street right-of-way. Local interests will be required to provide spoil areas for surplus material.

7. UTILITY RELOCATIONS - Costs shown in Table B-1 include required modifications to existing sewer, water, and gas lines and relocation of a utility pole on Concord Street.

TABLE B-1  
ESTIMATED FIRST COST  
SUMMARY

Non-Federal

Lands and Damages	\$ 375,000
Relocations	<u>15,000</u>
	\$ 390,000

Federal

Levees and Floodwalls	\$2,360,000
Pumping Station	195,000
Engineering & Design	405,000
Supervision & Administration	<u>250,000</u>
	\$3,210,000

TOTAL FIRST COST	\$3,600,000
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TABLE B-2  
ESTIMATED ANNUAL COSTS  
(100-Year Life)

Federal

Interest and Amortization on Investment (.03388 x \$3,210,000)	\$ 109,000
---	------------

Non-Federal

Interest & Amortization on Investment (.03388 x \$390,000)	\$13,200	
Maintenance and Operation	4,100	
Major Replacements	<u>3,700</u>	
Total - Non-Federal		\$ 21,000

TOTAL ANNUAL COSTS	\$ 130,000
--------------------	------------

TOTAL ANNUAL BENEFITS	\$ 224,000
-----------------------	------------

BENEFIT-COST RATIO	1.7 to 1.0
--------------------	------------

TABLE B-3

DETAILED COST ESTIMATE  
(January 1973 Price Level)

<u>Description</u>	<u>Estimated Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Estimated Amount</u>
<u>01. Lands and Damages</u>				
<u>Permanent Easement &amp; Fee</u>				
Wood Frame Warehouse	1	ea.	L.S.	\$ 12,000
Fuel Storage Tank & Pumps	1	ea.	L.S.	3,000
Prime Commercial	.16	ac.	\$87,000	13,900
Commercial	.69	ac.	19,000	13,100
Residential	1.10	ac.	40,000	44,000
Choice Industrial	.21	ac.	80,000	16,800
Rear Industrial	5.35	ac.	20,000	107,000
Rear Lowland	2.33	ac.	5,000	11,700
<u>Temporary Easement</u>				
Land Area	2.18	ac.	L.S.	8,700
Severence Damages			L.S.	40,000
Acquisition Costs			L.S.	30,700
Contingencies			L.S.	59,100
Relocation Assistance			L.S.	<u>15,000</u>
Total - Lands & Damages				\$375,000
<u>02. Relocations</u>				
Utilities	1	Job	L.S.	\$ 10,000
Contingencies				2,000
30. Engineering & Design				1,800
31. Supervision & Administration				<u>1,200</u>
Total - Relocations				\$ 15,000
<u>11. Levees and Floodwalls</u>				
<u>Land Dikes</u>				
Site Preparation	1	Job	L.S.	\$ 9,500
Stream Control	1	Job	L.S.	28,000
Excavation, Unclassified	53,000	c.y.	\$3.00	159,000

<u>Description</u>	<u>Estimated Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Estimated Amount</u>
11. <u>Levees and Floodwalls</u> (Cont'd)				
<u>Land Dikes</u> (Cont'd)				
Compacted Earthfill	81,000	c.y.	\$3.50	\$283,500
Compacted Gravel Fill	18,800	c.y.	6.00	112,800
Gravel Bedding	5,000	c.y.	7.00	35,000
Protection Stone	11,200	c.y.	20.00	224,000
Dumped Fill	12,100	c.y.	1.20	14,520
Topsoil	1,450	c.y.	6.50	9,425
Seeding	9,000	s.y.	0.40	3,600
				<u>879,345</u>
Contingencies				<u>175,655</u>
				\$1,055,000
30. Engineering & Design				168,000
31. Supervision & Administration				<u>103,000</u>
Total - Land Dikes				\$1,326,000
<u>Flood Walls</u>				
Structural Excavation	9,350	c.y.	\$3.00	\$ 28,050
Steel Sheet Piling	1	Job	L.S.	15,300
Earth Backfill	9,000	c.y.	4.00	36,000
Reinforced Concrete	3,390	c.y.	102.00	345,780
Mass Concrete	280	c.y.	80.00	22,400
Cement	21,200	cwt.	1.50	31,800
Reinforcing Steel	333,000	lb.	0.25	83,250
4'x6' Sluice Gate	1	Job	L.S.	7,700
16" Gate Valve	1	Job	L.S.	2,100
Trash Rack	1	Job	L.S.	700
Shoring Mill Building	1	Job	L.S.	50,000
Misc. Work	1	Job	L.S.	<u>10,000</u>
				633,080
Contingencies				<u>126,920</u>
				\$760,000
30. Engineering & Design				120,000
31. Supervision & Administration				<u>75,000</u>
Total - Flood Walls				\$955,000

<u>Description</u>	<u>Estimated Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Estimated Amount</u>
11. <u>Levees and Floodwalls (Cont'd)</u>				
<u>Vehicular Gate</u>				
Structural Excavation	1,200	c.y.	\$ 3.00	\$ 3,600
Earth Backfill	900	c.y.	4.00	3,600
Reinforced Concrete	750	c.y.	102.00	76,500
Cement	4,230	cwt.	1.50	6,345
Reinforcing Steel	75,000	lb.	0.25	18,750
Steel Gates	1	Job	L.S.	117,600 #218/1
Pavement	400	s.y.	4.00	1,600
Miscellaneous Items	1	Job	L.S.	1,000
				\$228,995
Contingencies				<u>46,005</u>
				\$275,000
30. Engineering & Design				43,000
31. Supervision & Administration				<u>27,000</u>
Total - Vehicular Gate				\$345,000

Stoplog Structure

Structural Excavation	800	c.y.	\$ 3.00	\$ 2,400
Earth Backfill	650	c.y.	4.00	2,600
Reinforced Concrete	160	c.y.	102.00	16,320
Cement	900	cwt.	1.50	1,350
Reinforcing Steel	16,000	lb.	0.25	4,000
Sheeting & Bracing	1	Job	L.S.	10,000
Maintaining Traffic	1	Job	L.S.	10,000
Stoplog Shelter	1	Job	L.S.	<u>8,000</u>
				\$ 54,670
Contingencies				<u>10,330</u>
				\$ 65,000
30. Engineering & Design				10,000
31. Supervision & Administration				<u>6,000</u>
Total - Stoplog Structure				\$ 81,000

<u>Description</u>	<u>Estimated Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Estimated Amount</u>
11. <u>Levees and Floodwalls</u> (Cont'd)				
<u>Channel Realignment</u>				
Excavation	16,000	c.y.	\$ 3.00	\$ 48,000
Contingencies				<u>12,000</u>
				\$ 60,000
30. Engineering & Design				10,000
31. Supervision & Administration				<u>6,000</u>
Total - Channel Realignment				\$ 76,000
<u>Drainage</u>				
Trench Excavation	4,000	c.y.	\$ 1.77	\$ 7,080
Earth Backfill	3,000	c.y.	5.31	15,930
Sheeting and Bracing	1	Job	L.S.	13,275
12" R.C. Pipe	50	l.f.	5.30	265
15" R.C. Pipe	150	l.f.	7.10	1,065
24" R.C. Pipe	300	l.f.	12.40	3,720
30" R.C. Pipe	700	l.f.	17.70	12,390
36" R.C. Pipe	1,600	l.f.	23.00	36,800
Manholes	9	ea.	1,060.00	9,540
Drain Inlets	9	ea.	708.00	6,372
Headwall	1	Job	L.S.	1,500
Seepage Control	1	Job	L.S.	8,850
Miscellaneous Items	1	Job	L.S.	<u>3,540</u>
				\$120,327
Contingencies				<u>24,673</u>
				\$145,000
30. Engineering & Design				23,000
31. Supervision & Administration				<u>14,000</u>
Total - Drainage				\$182,000
Total - Levees and Floodwalls				\$2,965,000

<u>Description</u>	<u>Estimated Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Estimated Amount</u>
13. <u>Pumping Station</u>				
Structural Excavation	300	c.y.	\$ 2.00	\$ 600
Earth Backfill	150	c.y.	5.00	750
Reinforced Concrete	200	c.y.	110.00	22,000
Superstructure	1	Job	L.S.	40,000
Pumps & Engines	2	ea.	24,000.00	48,000
Sluice Gates	2	ea.	8,500.00	17,000
Traveling Crane	1	Job	L.S.	3,500
20" Coated Steel Pipes	260	l.f.	55.00	14,300
48" Reinforced Conc. Pipes	125	l.f.	55.00	6,875
Electrical Work	1	Job	L.S.	3,000
Flap Gate & Misc.	1	Job	L.S.	5,000
				<u>\$161,025</u>
Contingencies				<u>33,975</u>
				\$195,000
30. Engineering & Design				31,000
31. Supervision & Administration				<u>19,000</u>
Total - Pumping Station				\$245,000
TOTAL - PROJECT FIRST COST				\$3,600,000

ATTACHMENT

ENVIRONMENTAL STATEMENT

## ENVIRONMENTAL STATEMENT

### PREFACE

The attached Final Environmental Statement dated 12 July 1971 filed with the President's Council on Environmental Quality on 15 August 1971 accompanies this Phase I submission of the General Design Memorandum as required by ER 1110-2-1150, Appendix A, paragraph 2i. Data included in the Final Environmental Statement reflects information available as of 12 July 1971.

Since the Final EIS was filed with CEQ, effort prior to and during Phase I Plan Formulation has produced new data and changes not reflected in the Final EIS. Those data and changes will be reflected in the Updated Final Environmental Statement as indicated in ER 1110-2-1150, Appendix A, paragraph 3i.

Section K of this Design Memorandum presents environmental data available at the time of preparation of the memorandum.

FINAL  
ENVIRONMENTAL STATEMENT

SAXONVILLE LOCAL PROTECTION  
SUDBURY RIVER, FRAMINGHAM, MASSACHUSETTS

Prepared By  
U. S. ARMY ENGINEER DIVISION, NEW ENGLAND, WALTHAM, MASSACHUSETTS

12 July 1971

Saxonville Local Protection

Sudbury River, Massachusetts

( ) Draft

(X) Final Environmental Statement

Responsible Office: U. S. Army Engineer Division, New England,  
Waltham, Mass.

1. Name of Action: (X) Administrative ( ) Legislative

2. Description of Action: Flood control protection in Middlesex County, Massachusetts, consisting of 2,900 feet of earth dike, 750 feet of concrete floodwalls, a vehicular flood gate, a railroad stoplog structure and a pumping station.

3. a. Environmental Impacts: Improved water quality, additional flood protection, increased turbidity and loss of some vegetation associated with construction.

b. Adverse Environmental Impacts: Construction will result in a temporary turbidity in the river. Some vegetation will be destroyed in the improvement area.

4. Alternatives: Flood control reservoirs, right bank protection, flood plain zoning, evacuation of the flood plain, river diversion, "no development."

5. Comments Received:

Bureau of Outdoor Recreation  
Bureau of Sport Fisheries and  
Wildlife  
Federal Water Quality Administration  
Metropolitan Area Planning  
Council

Mass. Dept. of Natural Resources  
Mass. Water Resources Commission  
Mass. Dept. of Commerce and  
Development

6. Draft statement sent to CEQ 14 APR 1971.  
Final statement sent to CEQ                     .

1. Project Description. The village of Saxonville is in the north-easterly part of Framingham, Mass., on the Sudbury River, a tributary in the North Nashua River Basin. The Sudbury River drains 163 square miles, flows easterly and then northerly, joins with the Assabet River and forms the Concord River. Topography makes the project location subject to floods.

Industrial and commercial activity in the village of Saxonville is concentrated along the stretch of the Sudbury River which runs between Central Street and Danforth Street. The river in this reach follows an irregular "U" shaped course flowing generally from Central Street, first southerly then easterly and then northerly. Approximately 60 acres of urban property on both sides of the stream are subject to flooding according to the Standard Project Flood criteria. The densely settled portion of the village is built on low-lying land on the left bank, inclosed by the river bend. On the opposite bank, newer facilities reflect continuing growth in the area.

The proposed project is designed to prevent flooding of the important facilities and homes in the area. Twenty-nine hundred feet of earth dike, 750 feet of concrete floodwalls, a vehicular flood gate, a railroad stop-log structure and a pumping station are proposed. In addition, a 1,200-foot long section of the river channel will be straightened. In this manner, flood waters will be controlled and contained.

The authorization for the project is based on a Resolution by the Committee on Public Works of the United States Senate, adopted 14 September 1955 and 9 February 1961, which requested studies on the Merrimack River Basin, in which the project area is located.

The benefit to cost ratio is 1.5 to 1.

2. Environmental Setting Without the Project. In recent years, the Framingham area has experienced increased industrial and commercial activity. A major factor in this increase has been the transportation facilities which include improved highways (Interstate 90, State Highways Nos. 9, 126, 128, 135) major bus and rail service and the proximity of Logan International Airport. Present trends indicate that this area is one of the fastest growing areas in the Commonwealth.

Due to this increased development, the Sudbury River at the project site is being polluted by mill wastes and other forms of foreign

material. The river itself is normally low flowing and sluggish. Downstream of the developed reach of the river, the channel is meandering with low gradient and velocity. These conditions result in the deposition of silt.

Fish and wildlife resources are limited to a few trees and shrubs. The fishing resources of the river have been all but eliminated by industrial and local pollution.

3. Environmental Impacts of the Proposed Action. During the course of the study, the Bureau of Sport Fisheries and Wildlife was contacted regarding possible adverse effects to fish and wildlife resources. They reported "...that the project will have no adverse effects upon fish and wildlife resources and it offers no opportunity to benefit these resources."

The project will have a beneficial effect on the water quality of the Sudbury River by reducing the amount of eroded material added to the river. Another beneficial result will be the desired flood protection.

Construction work may cause some increased siltation and temporary turbidity, although precaution will be taken to keep this at a minimum. Some vegetation will be destroyed in the area of the channel improvement. This condition will prevail until revegetation can be accomplished.

The aesthetics of the area will be enhanced by the improved water quality. The revegetation of the channel area offers an opportunity to better the aesthetic quality. Since the environment is mostly man-made, consisting of factories and the like, the improvements will not detract anything from the scenery. Instead, neatness, control and order will displace an unsightly and undesirable condition.

4. Any Adverse Environmental Effects Which Cannot be Avoided Should the Project be Implemented.

Besides the previously mentioned effects due to construction, no other adverse environmental effects have been identified.

5. Alternatives to the Proposed Action. During the course of the study, the following alternatives were considered:

a. Flood Control Reservoirs. Consideration was given to raising the existing Saxonville Pond Dam 24 feet to provide a flood storage capacity of 4.5 inches of runoff from the 86 square mile drainage area.

This would inundate the Cushing State Hospital, Framingham High School, a large new shopping center and extensive high class residential and commercial areas. In addition to this, the topography of the area is such that there are natural flood storage areas which would minimize the effectiveness of possible flood control reservoirs. Due to this lack of effectiveness and the extensive relocation that would be involved, this alternative was deemed as impractical.

b. Right Bank Protection. Preliminary studies were made to include flood protection of the flood prone areas on the right side of the Sudbury River at the request of local interests. Three alternate plans were studied for protecting the areas upstream and downstream along the right bank in the vicinity of Concord Street and Cochituate Brook. The plans entailed construction of earth dikes, concrete walls, highway and railway gate closures, pumping station and appurtenant structure.

The alternative was dropped because much of the flood prone land on the right side of the Sudbury River is undeveloped at present, and the improvements were evaluated to be five times more costly than the possible benefits.

c. Flood Plain Zoning. Flood plain restrictive zoning would afford protection to the flood prone areas. On the left side of the Sudbury River, this would be impractical and uneconomic because the area is already highly developed and relocation of a number of establishments and businesses would have an adverse effect on the local economy. Zoning to control development on the right bank is still a possibility.

d. Evacuation of the Flood Plain. Although flood plain evacuation would offer protection to the flood prone area and cut down on the annual losses due to flood damage, this alternative is impractical for a number of reasons. First, the area is highly developed and relocation would be more costly than the benefits received. Second, the area has been committed to economic development as evidenced by the improved transportation facilities between the Framingham, Worcester and Boston areas and the increase in the number of new industries. Third, evacuation would be a great hindrance to future development of the area.

e. Tunnel Diversion. Consideration was given to diverting the water from Saxonville Pond to the Sudbury River downstream from Danforth Street by means of a tunnel. Specifically, the tunnel would be 1,000 feet in length, 17 feet in diameter with a concrete intake structure

at Saxonville Pond and a stilling basin at the outlet to the Sudbury River. A dam, 300 feet in length with a maximum height of 32 feet above the stream bed and a top width of 12 feet, would be required to prevent backwater flooding. Also included in the construction plans would be a pumping station, flood gates and modification of the existing outlet for Lake Cochituate. Although this plan would afford flood protection for the areas on both sides of the Sudbury River, the estimated cost would be over \$4,000,000, which is considerably more costly than the selected plan without providing commensurate increase in benefits.

f. No Development. If no improvements are made the Saxonville area will still be subject to possible flood damage. Under the 1964 economic conditions, annual losses were estimated to be \$74,000 on the left bank and \$7,000 on the right bank. A recurrence of the record flood of August 1955 would cause losses estimated at \$1,040,000 with only \$145,000 of this loss occurring on the right bank of the river. Commercial facilities that would be affected include the Roxbury Carpet Company, two thriving building concerns, a fuel oil business, a welding shop and an auto body shop. In addition to these, 23 residential properties housing 41 families, a fire station, the American Legion Club-house and a sewage pumping station would also be affected. On the right bank, 17 commercial establishments and 5 dwellings would suffer some damages. These are the 1964 statistics. Since then, more development has occurred and with the increased cost of living, damages sustained due to flooding would be even greater today.

6. The Relationship Between Local Short Term Uses of Man's Environment and the Maintenance and Enhancement of Long Term Productivity

As mentioned earlier, the Saxonville-Framingham area is becoming a fast growing industrial center. The additional flood protection afforded by the project will encourage new business to develop. This will have a long term beneficial effect on the local economy. The improved aesthetics and water quality will also contribute to long term productivity.

The construction work can be considered a short term use of the environment. It may have some effect on the river by increasing the turbidity and amount of siltation downstream. These short lived effects are minor and are outweighed by the long term benefits that will be realized when the project is completed.

7. Any Irreversible and Irretrievable Commitment of Resources Which Would be Involved in the Proposed Action Should It be Implemented.

Besides the labor involved, some vegetation along where the channel is being improved will be destroyed, but revegetation of this area will offset this loss and even add to the scenery.

8. Coordination With Other Agencies

Coordination has been maintained throughout the course of the study with Federal, State and local agencies which have responsibilities or interests in the project. Included were the following:

Bureau of Outdoor Recreation  
Bureau of Sport Fisheries and Wildlife  
Federal Water Quality Administration  
Mass. Department of Natural Resources  
Town of Framingham, Massachusetts

A draft environmental statement was furnished to the Bureau of Outdoor Recreation, Fish and Wildlife Service, Federal Water Quality Administration, Massachusetts Department of Natural Resources and the Town of Framingham.

The Massachusetts Department of Natural Resources coordinates the State review of the draft with several State agencies that have particular expertise or interest in matters related to the project.

This statement has been revised to include agency comments, the major points of which are summarized below.

a. Bureau of Outdoor Recreation

Comment: Discussion of the human environmental factors, long term consequences, and aesthetic consideration should be expanded.

Response: The statement has been enlarged to include greater discussion of these points.

Comment: Complete discussions of the alternatives are not made.

Response: Greater discussions of the alternatives have been incorporated into the statement.

b. Bureau of Sport Fisheries and Wildlife

Comment: The project will have no adverse effects upon the fish and wildlife resources and it offers no opportunities to benefit these resources.

c. Federal Water Quality Administration

Comment: The project will have no long term adverse effects on the water quality. Although some short term detrimental effect may be realized due to increased turbidity and siltation from construction, these effects may be minimized by careful construction techniques, use of temporary silting basins and prompt revegetation of the disturbed area.

Response: These points well taken and are brought out in the statement.

d. Department of Natural Resources

Comment: We have solicited views of seven State agencies concerning the environmental statements for the Saxonville Local Protection Project and have received no objections.

Comment: The Department of Commerce and Development states that they are in favor of the project because of the positive effects it will have on flood control and the industrial and commercial activities of the area.

Comment: The Water Resources Commission reports that the Roxbury Carpet Company, the principal industrial complex to be affected by the project, is involved in a pollution abatement project. However, no conflicts between these two projects are envisioned at the present time.

Comment: The Metropolitan Area Planning Council suggests that opportunities for environmental enhancement be incorporated into such channel improvement projects.

e. Town of Framingham, Massachusetts

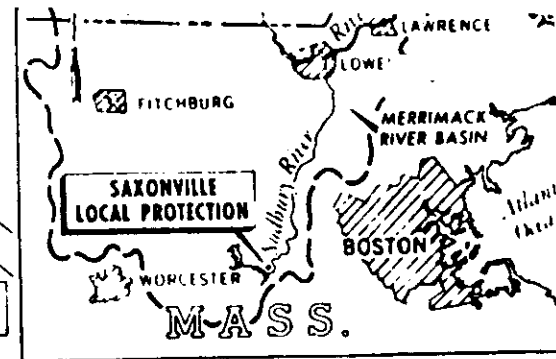
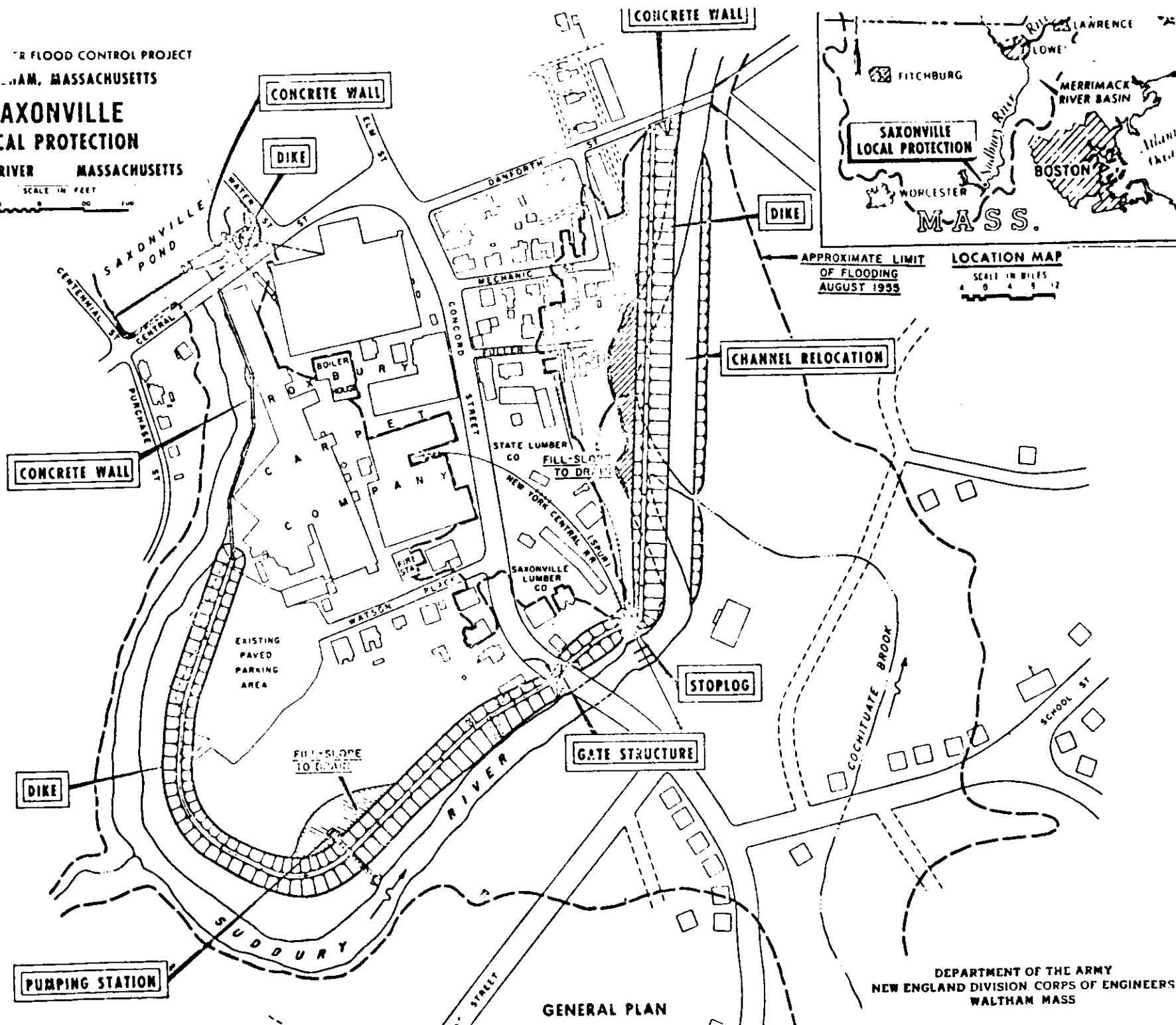
Comment: No comments were received from the Town as of this date.

MERRIMACK RIVER FLOOD CONTROL PROJECT  
FRAMINGHAM, MASSACHUSETTS

# SAXONVILLE LOCAL PROTECTION

SUDBURY RIVER MASSACHUSETTS

SCALE IN FEET  
0 50 100



APPROXIMATE LIMIT  
OF FLOODING  
AUGUST 1935

LOCATION MAP  
SCALE IN MILES  
0 4 8 12

GENERAL PLAN

DEPARTMENT OF THE ARMY  
NEW ENGLAND DIVISION CORPS OF ENGINEERS  
WALTHAM MASS



IN REPLY REFER TO:

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF OUTDOOR RECREATION  
FEDERAL BUILDING  
1421 CHERRY STREET  
PHILADELPHIA, PENNSYLVANIA 19102

November 13, 1970

Colonel Frank P. Bane  
Division Engineer  
New England Division, Corps of Engineers  
424 Trapelo Road  
Waltham, Massachusetts 02154

Dear Colonel Bane:

This will provide further response to Mr. John Leslie's letter of September 3, 1970. As requested, our letters of September 30 and October 20, 1970 and this letter provide our comments on draft environmental statements transmitted by Mr. Leslie's letter for the following projects:

- |                          |                                |
|--------------------------|--------------------------------|
| 1. Baker Brook           | Fitchburg, Massachusetts       |
| 2. Beaver Brook          | Keene, New Hampshire           |
| 3. Bristol Harbor        | Bristol Harbor, Rhode Island   |
| 4. Charles River         | Boston, Massachusetts          |
| 5. Cliff Walk            | Newport, Rhode Island          |
| 6. Danbury               | Danbury, Connecticut           |
| 7. Dickey-Lincoln School | St. John River, Maine          |
| 8. Fall River Harbor     | Rhode Island and Massachusetts |
| 9. Ipswich River         | Ipswich, Massachusetts         |
| 10. New London           | New London, Connecticut        |
| 11. Nookagee             | Westminster, Massachusetts     |
| 12. North Nashua River   | Fitchburg, Massachusetts       |
| 13. Park River           | Hartford, Connecticut          |
| 14. Phillips             | West Fitchburg, Massachusetts  |
| 15. Saxonville           | Framingham, Massachusetts      |

- |                   |                             |
|-------------------|-----------------------------|
| 16. Stratford     | Stratford, Connecticut      |
| 17. Trumbull Pond | Trumbull, Connecticut       |
| 18. Westerly      | Westerly, Rhode Island      |
| 19. Whitmanville  | Whitmanville, Massachusetts |

We believe that each of the above draft environmental statements is lacking a full discussion of the human environmental factors which are related to the proposals. In many cases it appears that significant natural or physical resources may be involved but no attempt has been made to present an analysis of plan formulation considerations which led to the recommended development scheme. The draft statements have recognized the existence of human, natural, and physical resources but we would recommend that your statements be expanded to include an evaluation of the potential impact of your proposals on such resources.

We also believe your draft statements have failed to give satisfactory consideration to the overall long term consequences which could result from development. In many cases it would be necessary to project or estimate what these consequences might be but we believe such an assessment can be an important part of any environmental statement and recommend that this be done where appropriate. Your statement should include an analysis of current and expected future trends in affected land uses and the many related social and cultural factors which would be important to an understanding of the total impact of the project. Examples of such factors which you should consider in determining those which might be pertinent to the project are population growth, urban growth, transportation systems, resource development plans and industrial expansion. The presentation of your impact statement should be coordinated with current plan recommendations of the public agencies which have prepared plans for areas which would be affected by your proposals.

The draft statements are noticeably lacking in discussions of the aesthetic considerations related both to the proposed developments and to the planned operation of the projects.

Generally, it appears to us that your approach to the preparation of these statements has been defensive in nature. We believe that acceptance of this approach is not consistent with the objectives of national environmental legislation. We now have tools needed to assist us in the offering of preventive solutions to environmental problems. In each of your proposed projects a public need is defined and serving this need appears to be your goal. Your estimates of the project economics is evidence in itself that serving this need is a valid objective. It is important to note, however, that other public needs may very likely be critical. The

implementation of plan measures which were developed primarily on the basis of economic considerations could predetermine that even a remedial solution to an environmental problem recongized at some future time would be ineffective. We believe a more satisfactory result would be obtained if a positively oriented discussion were made of the many factors related to each project which you have determined to be a major Federal action. In like manner this approach should extend to an adequate treatment of a full range of project alternatives.

In order that the above comments on your draft environmental statements might be better understood, we have prepared as examples more specific comments for selected individual projects, as follows:

#### Saxonville Local Protection

Recognition and discussion in this statement of the loss or modification of a natural stream environment through channelization measures is recommended. It appears also that you have recognized a valid alternative to the recommended project, involving evacuation of the flood plain and supporting measures, but complete discussions of this and other alternatives are not made.

#### Baker Brook Channel Improvement

More detailed discussions are needed which relate current land uses to the problems of bank erosion, stream pollution; low stream flow and siltation of the channel which you have identified. If this is done, a more complete discussion of practicable alternatives could be presented and a clearer understanding of the potential impact of the project on outdoor recreation or aesthetic values could be made apparent.

#### Fall River Harbor, Massachusetts and Rhode Island

The description and discussions of the impact which this project will have on the human environment should include detailed consideration of the relationship between this proposal and land use or open space plans for the project area. There is no discussion of the closely related project which you refer to as "a land relocation project scheduled by the City of Fall River to create 40 acres of waterfront property."

Your statement indicates that "there are several aspects of the project which could represent irreversible and irretrievable commitment of resources but the factors governing these are questionable at this time." We believe that such a finding without additional discussion as to the full range of possible adverse affects is not compatible with the intent of P.L. 91-190. A fuller explanation of spoil disposal and its effects should be made, and we believe that the discussion of possible alternatives and environmental enhancement opportunities is woefully lacking.

### Bristol Harbor, Rhode Island

The statement should include a more complete explanation and analysis of the effects on the natural environment of changing the circulation pattern in the harbor. An explanation of the studies made of the circulation patterns, and the project effects on the circulation patterns, could enable a better understanding of the lack of knowledge with respect to any changes and also, perhaps, some idea of the probability that changes might take place which could adversely affect the aesthetic or outdoor recreation values of the harbor area.

We also believe some discussion is needed regarding the commitments that would be necessary from other non-Federal public agencies in order that a pollution problem not be further magnified by the project. It would assist in understanding the possible consequences of the project if you would also discuss or suggest possible means to obtain any needed commitment, or alternatives to such commitment.

### Hurricane Protection, Stratford, Connecticut

A major result from implementing this project would appear to be to make existing marsh lands near the project an attractive area for future land fill operations. The strong inducement which this would offer for the pursuit of economic gain could more than counterbalance an expressed environmental concern at the level at which decisions would be made. The results of your studies have caused you to advise local interests "to restrict future development in the marsh thus preserving the ecological value of the marsh." You suggest with or without the project the marsh will be lost to filling operations. This does not appear to us as a satisfactory end result of project planning and analysis. A fuller discussion of various alternatives and the possible consequences of each is necessary. It would appear that in each case some recognition would be needed of the required permit procedures which must be adhered to prior to initiating filling activities. This project offers a good example of a "cause and effect" relationship over which good control of the result is possible if thorough study is made of the ramifications of the project prior to any final decision on a plan.

### Charles River Dam, Massachusetts

The draft statement for this project provides another example of what we believe is a lack of consideration of the cumulative long term impact of the proposal. The project is presented as a first step measure to a "satisfactory solution to the flood problems in the Back Bay Fens and on Muddy River." No effort is made to provide additional discussion of possible related proposals, each of which will have an identifiable impact on the environment. A similar observation relates to the proposal for construction of a highway viaduct crossing the Charles River.

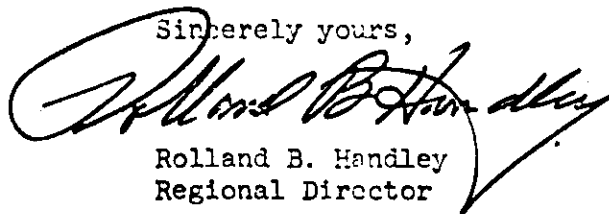
Dickey-Lincoln School Reservoirs

This draft statement, as well as others under discussion here, tends to equate environmental impact to identified project benefits. In so doing, the statements fail to provide a long term assessment of potential adverse and beneficial environmental impacts. Presented as it is, the statement fails to provide any consideration of other pertinent land uses in the area which would be influenced by the project. We believe that a more quantitative description could be made of the total impact of a project of this magnitude on a relatively untouched area. Alternative plans which could serve the needs associated with these projects should be presented along with a similar detailed descriptive analysis of the impact which these measures would have on the environment.

We have prepared these comments on the basis of the information provided in your draft environmental statements. Detailed studies of your proposals or field reviews of the project areas have not been conducted.

We are pleased to have had the opportunity to provide this technical assistance to you and we hope our comments will be useful as you further develop your environmental statements.

Sincerely yours,

A handwritten signature in dark ink, appearing to read "Rolland B. Handley", is written over the typed name and title. The signature is fluid and cursive, with a large loop at the beginning and a long, sweeping tail that extends to the right.

Rolland B. Handley  
Regional Director



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE  
BUREAU OF SPORT FISHERIES AND WILDLIFE  
U. S. POST OFFICE AND COURTHOUSE  
BOSTON, MASSACHUSETTS 02109

DEC 4 1970

Division Engineer  
New England Division  
U. S. Army Corps of Engineers  
424 Trapelo Road  
Waltham, Massachusetts

Dear Sir:

Mr. Leslie's letter of September 3, 1970 requested our comments on a draft of the Environmental Statement concerning the flood control local protection project at Saxonville, Middlesex County, Massachusetts.

3a. Identify "the Environmental Impacts of the Proposed Action"

The views of this Bureau should be included; viz., that this project will have no adverse effects upon fish and wildlife resources and it offers no opportunity to benefit these resources.

3c. Identify "Alternatives to the Proposed Action"

We understand that you plan to delete the dollar values relating to benefits foregone. We agree with this.

At such time as your statement in final form reaches the Secretary of the Interior for comments, we undoubtedly will be called upon to respond. Experience has shown that time allowed for such response may be as little as 3-4 days. If your policies and procedures will permit, we would appreciate receiving a draft of your statement as it is sent up through channels. This would give us a little lead time and allow us to prepare a more meaningful input to the Secretary's comments.

Sincerely yours,

ACTING   
Regional Director

UNITED STATES  
ENVIRONMENTAL PROTECTION AGENCY  
FEDERAL WATER QUALITY ADMINISTRATION  
Northeast Region  
John F. Kennedy Federal Building  
Boston, Massachusetts 02203

March 23, 1971

Mr. John Wm. Leslie  
Chief, Engineering Division  
Corps of Engineers  
424 Trapelo Road  
Waltham, Massachusetts 02154

Dear Mr. Leslie:

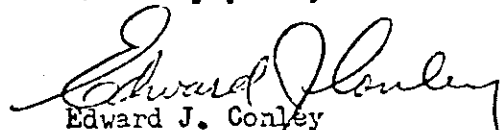
With reference to your letter of September 3, 1970 transmitting environmental statements on 19 projects for comment, there are enclosed our comments on an additional six projects.

This letter supplements our letters of October 20, 1970, January 8, 1971 and February 17, 1971. Comments on the remaining projects transmitted in your September 3 letter will follow as soon as possible.

The comments offered your agency are based on the Environmental Protection Agency's responsibility to render technical assistance. If you desire a formal EPA response on your proposed action, it is suggested that a request be directed to the Administrator, Environmental Protection Agency, 1626 K Street, N.W., Washington, D.C. 20460.

FOR THE REGIONAL DIRECTOR:

Sincerely yours,



Edward J. Conley  
Federal Activities Coordinator

Enclosures:

- Environmental Statement Comment, Hurricane Protection, Stratford, Conn.
- Environmental Statement Comment, Saxonville Local Protection, Mass.
- Environmental Statement Comment, Nockagee Dam, Mass.
- Environmental Statement Comment, N. Nashua Channel Improvement, Mass.
- Environmental Statement Comment, Dickey-Lincoln School Reservoir, Maine
- Environmental Statement Comment, Whitmanville Dam, Mass.

ENVIRONMENTAL STATEMENT COMMENT  
WATER QUALITY CONSIDERATIONS  
SAXONVILLE LOCAL PROTECTION  
FRAMINGHAM, MASSACHUSETTS

The proposed project along the Sudbury River would consist of the construction of earth dikes and floodwalls, a flood gate, stoplog structure, pumping station and river channel straightening.

The Sudbury River, from the Sudbury Reservoir to its mouth, has been classified as Class B. Waters of this class will be suitable for bathing and recreational uses, acceptable for public water supply with appropriate treatment, agricultural and certain industrial uses and will provide excellent fish and wildlife habitat.

Although no long term adverse effects on water quality are anticipated as a result of the proposed project, short term detrimental effects may occur as a result of increased turbidity and siltation resulting from construction operations. Such siltation could be minimized by careful construction techniques including the use of temporary stilling basins and prompt revegetation of disturbed areas.



OFFICE OF THE DIRECTOR  
DIVISION OF WATER RESOURCES

*The Commonwealth of Massachusetts*  
*Water Resources Commission*  
*Leverett Saltonstall Building, Government Center*  
*100 Cambridge Street, Boston 02202*

March 19, 1971

Mr. John Wm. Leslie  
Chief, Engineering Division  
New England Division  
Corps of Engineers  
424 Trapelo Road  
Waltham, Massachusetts 02154

EPA  
Re: File CE-09

Dear Mr. Leslie:

Please consider the enclosed statement from the Metropolitan Area Planning Council as an addendum to our letter of March 15, concerning the Saxonville Local Protection Project.

We concur with their comments regarding the possible opportunity for environmental enhancement being built into such channel improvement projects. We made similar comments regarding the Baker Brook project, and they are worth repeating here.

Sincerely yours,

A handwritten signature in cursive script, reading "Charles F. Kennedy".

Charles F. Kennedy  
Director and Chief Engineer

CFK/EHC/m

Enc.



Metropolitan Area Planning Council  
44 School Street Boston, Massachusetts 02108

Richard M. Doherty,  
Executive Director

1617, 50-1151

March 15, 1971

Mr. Charles F. Kenredy  
Director and Chief Engineer  
Water Resources Commission  
100 Cambridge Street  
Boston, Massachusetts 02202

Re: Saxonville Local Protection CE-09 -  
Environmental Statement (Received  
March 1, 1971)

Dear Mr. Kennedy:

In accordance with the provisions of the U.S. Office of Management and Budget Circular A-95, the Metropolitan Area Planning Council, as metropolitan clearinghouse, has reviewed the environmental statement of the Corps of Engineers.

The Metropolitan Area Open Space and Recreation Plan has outlined the Saxonville section of the Sudbury River as a natural environment area. The objective is to establish the natural environment for informal recreational pursuits such as fishing, boating, walking or bicycling along the banks.

This portion of the river is also important as it could link the Five Hills Reservation with the Cochituate Lakes and Heard Pond for a continuous green belt system.

While the proposed project will have no negative effects on the environment, it appears that an opportunity to recreate a portion of the natural environment is unexploited. "Neatness, control and order," need not be the only considerations. A heavy planting program of trees, shrubs, and ground cover could restore the riverbank as an open space asset to an already densely settled area.

The Town of Framingham is presently engaged in an urban renewal project in the Saxonville area. The Town's planning consultant, Mr. Charles Downe might be able to point out additional areas of mutual concern.

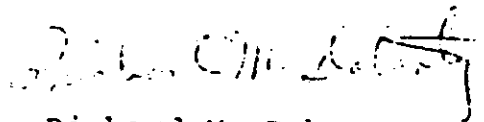
Mr. Charles F. Kennedy

- 2 -

March 15, 1971

If the Council can be of further assistance, do not  
hesitate to call us.

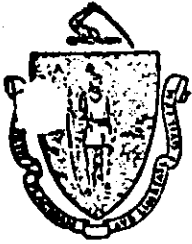
Very truly yours,



Richard M. Doherty  
Executive Director

RMD/df

cc: Mrs. Arlene O'Brien  
Office of Planning and Program  
Coordination  
Mrs. Barbara E. Gray  
MAPC Representative, Framingham



ARTHUR W. BROWNELL  
COMMISSIONER

*The Commonwealth of Massachusetts*  
*Department of Natural Resources*  
*Leverett Saltonstall Building*  
*100 Cambridge Street, Boston 02202*

March 16, 1971


Mr. John W. Leslie  
Chief Engineering Division  
New England Division  
Corps of Engineers  
424 Trapelo Road  
Waltham, Massachusetts 02154

Dear Mr. Leslie:

We have solicited views of seven state agencies concerning the environmental statement for the Saxonville Local Protection Project. No objections to the statement have been received.

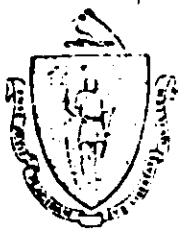
Enclosed are the comments of the Department of Commerce and Development and the Division of Water Pollution Control.

Sincerely yours,

  
Arthur W. Brownell, Commissioner  
Department of Natural Resources

AWB/kmk

Enclosure



FRANCIS W. SARCENT  
GOVERNOR

CARROLL P. SHEEHAN  
COMMISSIONER

*The Commonwealth of Massachusetts*  
*Department of Commerce and Development*  
*Leverett Saltonstall Building, Government Center*  
*100 Cambridge Street, Boston 02202*

727-3221

March 1, 1971

Charles F. Kennedy  
Director and Chief Engineer  
Water Resources Commission  
Leverett Saltonstall Building  
Government Center  
100 Cambridge Street  
Boston, Massachusetts 02202

Dear Mr. Kennedy:

Re: CE-09-Saxonville Local Protection

We wish to have the Department of Commerce and Development recorded as in favor of this project since, in our opinion, it will not only have an ultimate goal of flood control, but will also enhance the industrial and commercial activity within the bend of the Sudbury River. This latter factor is important in these times when the unemployment figures of the Commonwealth are climbing monthly.

This Department would be more than willing to assist in any manner whatsoever to see the successful completion of this project.

Sincerely,

*Regis J. Harrington*  
Regis J. Harrington  
Director  
Bureau of Area Planning

RJH/jo'd



OFFICE OF THE DIRECTOR

DIVISION OF WATER  
POLLUTION CONTROL

# *The Commonwealth of Massachusetts*

## *Water Resources Commission*

*Leverett Saltonstall Building, Government Center*

*100 Cambridge Street, Boston 02202*

March 3, 1971

RECEIVED

Mr. Charles F. Kennedy  
Director & Chief Engineer  
Water Resources Commission  
100 Cambridge Street  
Boston, Massachusetts

Re: Corps of Engineers  
Environmental Statement  
CE-09

Dear Mr. Kennedy:

This Division acknowledges receipt of your letter dated February 26, 1971, requesting our review and comments on Environmental Statement CE-09 entitled "Saxonville Local Protection, Framingham, Middlesex County, Massachusetts."

This Division interposes no objection to the proposed project. I would point out that the Roxbury Carpet Company, the principal industrial complex affected by this project, is involved in a pollution abatement program and is planning to tie into the municipal sewerage system with pre-treatment of its industrial wastes. However, I do not visualize any construction conflict between these two projects.

I appreciate the opportunity to comment on this project.

Very truly yours,

Thomas C. McMahon  
Director

TCM:GAF:cmc